

# ***Chemsol Groundwater Extraction and Treatment System O&M Manual Addendum***

## ***Volume I***

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Chemsol Site Remediation Trust

*Project Name:*

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Groundwater Extraction and Treatment System  
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### **Attachments:**

Health, Safety and Contingency Plan for O&M Activities

Remedial Construction Report

Construction Record Drawings

2009 NJDEP Surface Water Discharge Permit Equivalent Modification

2010 NJDEP Air Permit Equivalent Modification

## 1.0 Introduction

This document is intended to be used as an addendum to the Operations & Maintenance Manual for the Chemsol Superfund Site interim groundwater extraction and treatment system, Operable Unit No. 1 (OU-1). The interim remedy O&M Manual was completed in 1995 with the construction of the interim remedial design. This addendum has been compiled as a result of the construction of the final remedial design for the on-site groundwater remedy (OU-2, RWE II) in 2010. The interim groundwater remedy has been converted to the final remedy through upgrades to the extraction and treatment system.

The upgrades to the previously constructed groundwater extraction and treatment system are as follows:

- The addition of four extraction wells located along the northern property boundary (EX-1UP, EX-2P, EX-3L and EX-4P).
- Construction of a groundwater extraction force main and appurtenances to convey flow from the new extraction wells to the treatment plant.
- The addition of one extraction well in the central portion of the site (EX-C1P) for mass removal
- Modification of the existing extraction well, C-1 so that it is screened in only the Upper Permeable Aquifer (also a mass removal well).
- Replacement of the two packed tower air strippers with two low-profile tray air strippers.
- Replacement of six treatment system process pumps with higher output units.
- Removal of the (unused) biological treatment system.
- Installation of new media into existing multimedia filters, and upgrade of the backwash valves and controls on this unit.
- Installation of site-wide PLC based control system.

The system additions and upgrades enable the extraction and treatment of groundwater at an anticipated flow of 55 GPM for hydraulic containment of the site and mass removal to the extent practicable. The upgraded treatment system maximum capacity is increased to 70 GPM.

The components of the existing treatment system that remain unchanged are as follows:

- The catalytic oxidation system including the blowers, oxidizer unit, caustic scrubber, and caustic addition system (tank replaced only).
- The carbon adsorption system.
- The sludge storage and dewatering system (tank, filter press).
- The equalization and effluent tanks.
- The seal water system.
- The floor sump/drainage system.

Operation, maintenance, and trouble-shooting of these unchanged systems will continue to be performed in accordance with the 1995 O&M Manual. This addendum and the 1995 manual combined represent the complete O&M Manual for the final groundwater remedy.

Volume I of this addendum contains information on the specific upgrades made to the system, identification of potential operating problems and remedies, identification of possible alternative procedures in the event of major unit failures and a schedule for O&M activities. Volume II provides the manufacturer's O&M manuals for equipment purchased under this system upgrade. The revised Health and Safety Contingency Plan for O&M of the upgraded system is attached as a separate document. In addition, Volume II provides a copy of the 1995 O&M Manual, Volume I.

## 2.0 Extraction System

The upgraded groundwater extraction system consists of six extraction wells, submersible well pumps, level controls, flow instrumentation, force mains and local well piping and associated equipment enclosures, power and signal wiring. Each well pump output is controlled electronically via the system-wide PLC control through variable frequency drives (VFDs) that enable speed control of each individual well pump. Well pumps EX1-UP, EX2-P, EX-3L, and EX-4P are equipped with individual flow meters.

### 2.1 Extraction Wells and Pumps

Table I provides a summary of each system extraction well, well pump make and model installed and pump depth from the well top of casing (TOC) along with other operational and design information. The design of the groundwater extraction system for containment requires pumping from EX-1UP, EX-2P and EX-3L and EX-4P. The total pumping rate required for containment, for design purposes, is estimated at 40 gpm. However, this rate may be reduced due to efficiencies of pumping from two Principal Aquifer wells (EX-2P and EX-4P) and the need to pump only 5 gpm, as opposed to 10 gpm, from EX-1UP. In addition to the pumping for containment, pumping from retrofitted well C-1 and new well C-1P will be performed for mass removal. A summary of individual design well flow rates is shown in Table 1. Final operational flow rates will be determined during initial operations and adjustments from the design rates will be made as needed based on operating data (see Long-Term Monitoring Plan for capture zone demonstration), capture zone response, and treatment plant capacity. Extraction well flow and level operational parameters will be added to this plan once determined. See Volume II for manufacture's information.

Table 1 – Extraction Wells and Pumps

Well ID	Pump Make	Pump Model	Design Pumping Rate	Pump Depth TOC – Ft.	Purpose
EX-1UP	Grundfos	16S07-8	10 GPM	60.0	Upper Aquifer Containment
EX-2P	Grundfos	25S10-7	16 GPM	60.0	Principal Aquifer Containment
EX-3L	Grundfos	10S05-9	5 GPM	60.0	Deep Bedrock Aquifer Containment
EX-4P	Grundfos	16S05-5	9 GPM	60.0	Principal Aquifer Containment
C-1 (Retrofitted)	Grundfos	10S05-9	5 GPM	38.0	Mass Removal – Upper Aquifer
C-1P	Grundfos	16S05-5	10 GPM	60.0	Mass Removal – Principal Aquifer

## 2.2 Well Pump Controls

Each recovery well has a level instrumentation (submersible pressure transducer) installed to provide information to the operator and signal to the PLC regarding the water level depth. The PLC controls well pump speed based on the well level signal (for a required flow) or flow rate and the operator selectable well level and/or flow rate set point for each recovery well. The control logic varies the signal output to the well pump variable frequency drive (VFD) to maintain the desired well level depth or flow rate based on operator selection. If, due to low groundwater conditions, the well level drops to the selectable low level set point, the pump is turned off. The pump is then restarted once the water reaches the high level setting. As stated in Section 2.1, water level set points will be determined following system startup based on operating data, capture zone response, and treatment plant capacity.

Operator selectable High-High and Low-Low well levels, indicating a failure in the control system, pump, level transducer, or potential problem with the forcemain, will initiate an alarm condition and initiate an autodialer call out. Well pumps are also shut down via a command from the PLC due to the following conditions:

- Tank T-1 High Level and High-High Level
- "All Pumps Down" alarm condition

The VFD senses pump operating current and will shut well pumps down on high current or low current (run dry) conditions. These alarm conditions are transmitted to the main PLC alarm screen to inform the operator of a fault condition.

Recovery wells EX-1UP, EX-2P, EX-3L and EX-4P are equipped with magnetic flow tubes, flow transmitters and local display of the instantaneous flow and flow total at the well enclosure. This data is also transmitted to the main PLC for display on the Operator Interface Terminal (OIT), for data logging flow totalizing, and to inform the operator of a fault condition. A low flow set point for each well is programmable in the PLC. No or low flow condition from any well will trigger an alarm and initiate an autodialer call out. Flow set point based alarms and autodialing are triggered after 5 minutes of no flow or low flow conditions. The low flow autodialer call out is active only during normal working hours.

Recovery well C-1 and C-1P do not have dedicated flow meters. The PLC calculates the flow from these wells by subtracting the sum of flow from EX-1UP, EX-2P, EX-3L, and EX-4P from the treatment system influent flow meter on the influent force main entering the building. Based on this calculation the PLC will initiate No Flow or Low Flow alarms for C-1 and C-1P and initiate an autodialer call out, in a similar fashion as described above for EX wells.

See Volume II of this O&M Manual Addendum for manufacturer's information regarding the well pumps and controls.

## 2.3 Force Mains

Two force mains convey groundwater to the treatment system. The newly installed underground force main takes in flow from recovery wells EX-1UP, EX-2P, EX-3L and EX-4P and runs from EX-2P in a Westerly direction just South of the access road and then turns South and continues to follow the path of the access road along the East side of the road. The force main is constructed of double wall HDPE pipe with all welded joints. There are five cleanout access points and four leak detection risers along the route of the force main (see project drawing C-7 for locations). This force main joins the existing force main carrying flow from C-1 and C-1P at the pipe chase manhole adjacent to the Northeast corner of the Treatment Building. From there the combined force main continues along the pipe chase and into the Treatment building at the original entry point.

There are no routine operations associated with the forcemain other than confirming that it is free and open to convey flow (see Section 2.4). Forcemain cleaning, if necessary, is accomplished through the cleanouts located along the system, as shown on the record drawings. Forcemain cleaning will typically be performed by jet-rodding or similar equipment, although the cleaning method may vary depending on the cause of fouling if fouling were to occur (e.g., carbonate scale would be cleaned with dilute acid addition). All cleaning fluids will be containerized (e.g., vacuum truck) for proper disposal or routed through the treatment plant prior to discharge.

If air accumulates in the forcemain or is present after a shutdown for cleaning, it will be expelled through the air relief plugs on the cleanouts to restore full system flow.

## 2.4 Potential Operating Problems – Extraction System

PROBLEM	REMEDIES
No flow output from an individual extraction well	<ol style="list-style-type: none"><li>1. Verify that alarm condition is not present causing interlock of well pump.</li><li>2. Verify power to local well pump control cabinets.</li><li>3. Check that discharge valves on well pump line are fully open.</li><li>4. Check / reset motor overload or other fault condition at local control panel. Verify cause of fault and correct.</li><li>5. Check / verify operation of extraction</li></ol>

PROBLEM	REMEDIES
	<p>well flow meter for possible false low flow. Clean or replace flow meter as necessary.</p> <ol style="list-style-type: none"> <li>6. Check / verify operation of level transmitter controlling well pump. Replace if necessary.</li> <li>7. Check / verify condition of well pump motor leads and windings.</li> <li>8. Verify condition of pump discharge piping and pump ends. Replace pump end if required (spares typically available in 3-4 days, or based on operating experience stock pump ends).</li> <li>9. Verify well integrity and check for fouling. Clean well screen, if required.</li> <li>10. If failed well pump, lead or control component is determined, replace as needed.</li> </ol>
No flow from all well pumps	<ol style="list-style-type: none"> <li>1. Verify that alarm condition is not present causing interlock of well pump.</li> <li>2. Verify power to local well pump control cabinets.</li> <li>3. Verify condition of force main.</li> <li>4. Clean or repair force main as necessary</li> </ol>
Low flow from extraction well	<ol style="list-style-type: none"> <li>1. Determine if well level set point is correct and VFD output is correct. Reset or re-program if necessary.</li> <li>2. Verify that well pump isolation valve is fully open.</li> <li>3. Replace worn or clogged well pump with new unit.</li> <li>4. Verify well integrity and check for fouling.</li> </ol>

PROBLEM	REMEDIES
Low flow from all extraction wells in group (C-1P and C-1; EX-1UP, EX-4P, EX-3L; or EX-2P), well levels are above set points.	<ol style="list-style-type: none"><li>1. Verify condition of force main</li><li>2. Clean or repair force main as necessary.</li></ol>
Fluid buildup in leak detection riser	<ol style="list-style-type: none"><li>1. Verify whether condensation present</li><li>2. Isolate location and check for leaks in that location. Repair forcemain as necessary.</li></ol>

## ***2.5 Alternative Procedures – Extraction System***

In the event of a major extraction system component failure, alternative operational procedures may be implemented in order to maintain the goal of hydraulic control of the site. These procedures should not be implemented without approval of the Chemsol Site Project Coordinator.

**Extended Failure of Extraction Well** – In the event of the failure of an extraction well pump or component for an extended period of time (up to 30 days but not longer than 45 days so that the zone of capture is maintained), increased pumping from the remaining wells may be implemented at the direction of the Chemsol Site Project Coordinator until such time that the well components can be replaced.

**Force Main Failure** – In the event of the failure of one of the two force mains, the remaining force main should be isolated and returned to service. Flows from the well pumps remaining in service may be adjusted to maintain hydraulic control, to the maximum extent practicable. The Chemsol Site Project Coordinator should be consulted to determine what adjustments are needed until such time that repairs are made to the failed force main.

## ***2.6 Equipment Replacement Schedule – Extraction System***

There is no schedule for regular equipment replacement for extraction system components. As indicated in section 2.4, components are replaced as necessary based on performance and regular inspections that occur at each site visit, which is a minimum of three times per week.

### **3.0 Treatment Plant Upgrade**

The basic treatment system processes remain the same as the original design: Flow Equalization, Air Stripping, Multimedia Filtration, Liquid Phase Activated Carbon Adsorption, Pumped Effluent Discharge to surface water, Catalytic Oxidation of Stripper off-gas, and Sludge Dewatering. Of these processes, several upgrades were made in order to accommodate the increased flow rate from the new recovery wells while other changes were to replace older components with new and improved components. These upgrades can be summarized as:

- Upgrade of forward flow controls to allow either Flow Control Mode or Level Control Mode
- Relocation of P-1 pumps to allow access to Air Strippers for routine maintenance
- Replacement of forward flow pumps with upgraded P-2 and P-3 pumps
- Reinstallation of existing treatment plant P-6 pump for use as P-13 Effluent Pump
- Installation of new piping and two new flow meters between P-1 Pumps and Air Strippers
- Purchase of a mobile Gantry Crane to facilitate air stripper maintenance
- Replacement of the packed tower air strippers with two shallow-tray air strippers and associated piping and appurtenances
- Replacement of media in Multi-media Filters with new media specific for increased flow
- Replacement of the Multi-media Filter manifold and automatic valves
- Replacement of the Multi-media Filter control panel
- Replacement of Catox control panel electrical components with new components
- Replacement of the Caustic Scrubber control panel electrical components with new components
- Upgrade of the system controls by conversion to a PLC based control system
- Installation of two Operator Interface Terminals for the PLC, one in the control room and the other on the plant floor near the Catox unit

The above upgrades are discussed in more detail in this section of the O&M Manual Addendum.

### **3.1 Forward Flow Control**

An upgrade to the control logic has been added to the system. The upgrade permits an operator selectable choice between Flow Control Mode and Level control Mode.

- Flow Control – Selecting this mode of operation permits the operator to select a forward flow set point that will be maintained regardless of the level in T-1. If the level in T-1 reaches the Low Level set point, the P-1 pump selected for operation will shut off until the Low Level condition clears. Once this occurs, P-1 will re-start at the selected flow. Flow control can be used in conjunction with Series or Parallel air stripper operational modes (see below). In Flow Control mode, P-1 operates at a preset speed at all times and modulating valves MV-1, and MV-2 (when operating in air stripper Parallel Mode) control the flow rates. When operating in Flow Control mode, the operator must set the forward flow set point higher than the average influent flow + recycle flows (backwash, Catox blow down, etc.) to avoid high level alarm conditions.
- Level Control – Selecting this mode of operation permits the operator to select a level set point for T-1. The PLC will control forward flow rate to maintain the T-1 level selected by adjusting the speed of pump P-1. Level Control can only be used when the air strippers are operated in Series Mode.

The primary instrumentation inputs to the forward flow PLC control logic are:

- LT-T1 – Level transmitter for EQ Tank T-1
- FE-P1A – Magnetic flow meter measuring flow to air stripper ME-2A
- FE-P1B – Magnetic flow meter measuring flow to air stripper ME-2B

### **3.2 Pump Upgrades**

The existing P-1 Pumps have been relocated to just west of the EQ Tank (T-1) in order to allow easier access to the new shallow tray air strippers. Forward flow pumps P-2A&B, and P-3A&B have been upgraded to accommodate additional flow (see manufacturer's manual in Volume II of this addendum for specific pump details). Previously unused Biotreatment Effluent Pump P-6A has been removed and re-installed as Effluent Pump P-13 for increased flow performance. These pump upgrades allow for flows up to 70 GPM through the upgraded treatment system. The speed of all 3 sets of forward flow pumps are adjusted via Variable Frequency Drives (VFD). Speeds are controlled automatically by the PLC depending on the flow mode selected and operator selected set points, which will be based on operating data from the extraction well flows and capture zone analysis (see Long-Term Monitoring Plan).

Operation of these pumps is unchanged from the 1995 McLaren/Hart Operation and Maintenance Manual with the exception of the PLC-based control system described herein.

See Volume II for manufacture's information.

### 3.3 Air Strippers

Both packed tower air strippers and associated blowers and piping have been removed and replaced by two low-profile stainless steel air strippers (ME-2A & B) models STAT 80 manufactured by Carbonair Services. Each air stripper is rated for a maximum flow of 80 GPM and is equipped with a centrifugal blower to supply air to the stripper base. Each unit has seven "trays" containing numerous holes through which air flows up from the stripper sump to the top of the unit where contaminated air is collected. The contaminated air stream then passes through a demister pad before entering existing off gas outlet piping to the Catox unit. Contaminated water enters the top of the stripper and flows across each tray dropping down to subsequent trays via "wells" that prevent air flow short circuiting. The stainless steel trays are stacked with rubber gaskets between each tray and hold down clamps to prevent loss of air pressure and flow.

**Flow Modes** - The air stripper system can be operated in either Parallel Mode or Series Mode as selected by the operator:

- Series Mode – Flow enters ME-2A from pump P-1 and then is pumped from effluent sump of ME-2A to ME-2B via pump P-2. Effluent from ME-2B is then pumped to the Multi-Media Filters via pump P-3. In this mode motorized valves MV-1 and MV-4 are 100% open and MV-2 and MV-3 are 0% open.
- Parallel Mode - Motorized valves MV-1 and MV-2 are modulating flow control valves that maintain even operator selected flows to air strippers ME-2A and ME-2B. Flow Meters FIT-P1A and FIT-P1B measure flow and transmit data to the PLC. The PLC controls the modulating valves to maintain flow distribution between the two meters as selected. In Parallel Mode, MV-3 is open and MV-4 is closed. Both pumps, P-2 and P-3, discharge flow to the Multi-Media Filters. To allow the system to modulate without constant adjustment the acceptable flow range should be set for the FITs (e.g., 5 gpm or based on operating experience).

To take one air stripper out of service and still maintain flow through the treatment plant, Parallel mode is selected with zero liquid flow selected to the unit that is out of service. During this operation, air flow to the stripper that remains in service should be increased to the maximum flow rate of 350 CFM (see air flow control below) and liquid flow to the stripper remaining in service should be minimized to the extent practicable during the cleaning operation to avoid reduced performance of the stripper and resultant excessive downstream activated carbon consumption. To facilitate operation of a single air stripper at a reduced liquid flow rate during this maintenance period, the level in T-1 should be decreased to the maximum extent practicable prior to switching to a single air stripper operation mode.

**Air Flow Control** - Each air stripper is equipped with a centrifugal blower, air flow meter/transmitter and motorized air control valve. Air flow for each stripper is controlled by the PLC at 250 CFM. Each stripper is rated for a maximum air flow of 350 CFM, however the Catox is rated for a maximum air flow of 500 CFM therefore air flow from both strippers is limited to 500 CFM total. The PLC will control air flow by modulating the motorized air flow control valves and receiving air flow data from the air flow transmitter. Each stripper is equipped with a differential pressure (DP) instrument that measures air

pressure differential from the stripper sump to the contaminated air outlet. Differential pressure for each stripper is transmitted to the PLC and is compared to the programmable set point. If the DP exceeds the set point for more than 5 minutes, an alarm and autodialer output is triggered. The manufacturer recommends cleaning of the air stripper trays if the DP exceeds 7" WC pressure per tray.

Each air stripper blower is equipped with a low air flow sensor switch. Activation of this switch will initiate an alarm condition causing system shut down and autodialer activation.

**Sump Level Control** - Water levels in each stripper are controlled by a level transducer signal to the PLC which in turn varies the P-2 and P-3 pump speeds to maintain the level set point. In addition to the programmable set point for operating level, four selectable set points are programmed into the PLC: High, High-High, Low and Low-Low. Alarms and autodialer call out is triggered at High-High and Low-Low points. Upstream pumps (P-1 and P-2) are turned off at High and High-High levels.

The air strippers should be routinely monitored (i.e., at each site inspection which is a minimum of three times per week) by the operator for the following parameters:

- Water Flow
- Air Flow
- Differential Pressure
- Sump Level
- Sump Pressure

Based on the manufacturer's recommendations the stripper should be torn down and the trays cleaned if the DP exceeds 7" per tray, with a maximum DP of 9" WC per tray. Differential pressure will increase with increased water and air flow, therefore operating conditions must be considered when evaluating changes in DP to determine if cleaning is required. See the manufacturer's O&M manual provided in volume II of the addendum for specific instructions and details on preventative maintenance and air stripper troubleshooting.

### **3.4 Multimedia Filters**

Improvements to the multimedia filters that were completed during this upgrade are:

- Replacement of media with new media mix specified by manufacturer to accommodate increased flow rates.
- Replacement of the Multimedia Filter manifold piping.
- Upgrade of the Multimedia Filter automatic valves from hydraulic actuated to electrically actuated units.

- Upgrade of the backwash control system with new control panel and differential pressure transmitter.

The upgraded filter control system transmits filter differential pressure to the PLC where it is displayed at the operator interfaces. The PLC will activate a backwash cycle once the filter differential pressure reaches an operator selected set point. The backwash cycle operates as per the original filter design. Electrically operated automatic valves are actuated by the filter controller during the backwash cycle. Each filter is backwashed individually so there is no interruption in forward flow during the backwash cycle. At the initiation of the backwash cycle, there will be increased head loss as one filter unit is automatically removed from service to be backwashed. This will cause the P-3 pump (and P-2 pump if air strippers are operated in parallel) to ramp up speed to maintain the set point level in the air stripper sump(s). Once the backwash cycle is complete, the pump speed will return to normal.

Backwash water is discharged into tank T-7 as per the original design and then transferred to tank T-9 for settling. Clarified water is then decanted automatically from T-9 after an operator-selectable time period. The decanted water is transferred to T-1 for re-treatment. Settled solids in tank T-9 are periodically dewatered in the filter press unit.

See the 1995 McLaren/Hart Operation and Maintenance Manual for additional information on multimedia filter operations and maintenance.

### ***3.5 Catox and Scrubber Controls***

Catalytic Oxidizer control panel components have been replaced with new components in order to improve reliability. All new control panel components remain the same as original with the exception of the Catox PLC. The outdated original PLC has been replaced with an Allen-Bradley Micrologix 1200 unit. The new PLC contains the same Catox control logic as original, but has network output to the main PLC and local plant floor Operator Interface Terminal (OIT).

Similarly, the outdated Caustic Scrubber PLC has been replaced with an Allen-Bradley Micrologix 1200 unit. The new PLC contains the same Caustic Scrubber control logic as original, but has network output to the main PLC and local plant floor Operator Interface Terminal (OIT).

See the 1995 McLaren/Hart Operation and Maintenance Manual for additional information on catalytic oxidizer and caustic scrubber operation and maintenance.

### 3.6 Potential Operating Problems – Treatment System

PROBLEM	REMEDIES
Forward flow pumps do not shutoff	1) Verify level transmitter LT-T1 is functioning properly, recalibrate or replace if necessary
No forward flow from P-1 Pumps	2) Verify valves are open on suction and discharge of pumps. 3) Verify level transmitter LT-T1 is functioning properly, recalibrate or replace if necessary 4) Verify that no alarm conditions are locking out P-1 pumps: a) Low level in T-1 b) High level in air stripper sump c) Low Air Flow at strippers d) Catox not on line 5) Check / reset motor overload or other fault condition at MCC. Verify reason for fault and correct as necessary. 6) Verify that automatic valves MV-1, MV-2, MV-3 and MV-4 are operational and in proper positions. 7) Verify that pump is not clogged or seized. Open, inspect and repair pump as necessary.
No Forward Flow from P-2 and/or P-3 Pumps	1) Verify valves are open on suction and discharge of pumps. 2) Verify level transmitters at air stripper sumps are functioning properly, recalibrate or replace if necessary 3) Verify that no alarm conditions are locking out pumps: a) High level in air stripper sumps

PROBLEM	REMEDIES
	<ul style="list-style-type: none"> <li>b) Low Air Flow at strippers</li> <li>c) Catox not on line</li> <li>4) Check / reset motor overload or other fault condition at MCC. Verify reason for fault and correct as necessary.</li> <li>5) Verify that automatic valves MV-1, MV-2, MV-3 and MV-4 are operational and in proper positions.</li> <li>6) Verify that automatic valves at Multi Media filters are in correct operational positions</li> <li>7) Verify that valves at carbon units are in correct positions.</li> <li>8) Verify that effluent tank is not at high level causing interlock of pumps.</li> <li>9) Verify that pump is not clogged or seized. Open, inspect and repair pump as necessary.</li> </ul>
Low Flow P-3 Pump (or P-3 & P-2 pumps in parallel operation mode)	<ul style="list-style-type: none"> <li>1) Check for fault condition at MCC. Verify cause of fault and correct as necessary.</li> <li>2) Verify operation of multimedia filters, check filter differential pressure and backwash as needed.</li> <li>3) Check differential pressure at activated carbon units, backwash as needed.</li> </ul>
High Differential Pressure – Air Stripper	<ul style="list-style-type: none"> <li>1) Verify water flow rates and air flow rates do not exceed maximums.</li> <li>2) Clean air stripper trays and demister pads.</li> </ul>
Low Air Flow – Air Stripper	<ul style="list-style-type: none"> <li>1) Verify Catox is on line.</li> <li>2) Verify that Catox blower inlet valve is open and Catox blower bypass valve is closed, check valve linkage and actual valve position.</li> <li>3) Verify air stripper blower is running – check motor overloads and circuit breaker if necessary. Correct overload condition as</li> </ul>

PROBLEM	REMEDIES
	<p>necessary.</p> <ol style="list-style-type: none"> <li>4) Check air flow set points on PLC.</li> <li>5) Check position of air flow throttling valves at air stripper blowers.</li> <li>6) Check condition of air stripper blower inlet filters.</li> <li>7) Check air stripper blower discharge piping, couplings, air stripper gaskets for failure.</li> </ol>
High Differential Pressure – Multimedia Filters	<ol style="list-style-type: none"> <li>1) Check backwash control set point and adjust as needed, verify operation.</li> <li>2) Verify operation of backwash pump during backwash cycle.</li> <li>3) Verify operation of all manifold automatic valves.</li> <li>4) Check that hypochlorite feed system is operating. Perform disinfection of media and underdrain system using sodium hypochlorite solution if necessary.</li> </ol>
Catox Automatic Shutdown	<ol style="list-style-type: none"> <li>1) Check Catox air flow and temperature records for anomalies.</li> <li>2) Check caustic feed system and tank</li> <li>3) Restart Catox and monitor performance to verify proper operation.</li> </ol>

### 3.7 Alternative Procedures – Treatment System

In the event of a major treatment system component failure, alternative operational procedures may be implemented in order to maintain the goal of successful treatment and hydraulic control of the site. These procedures should not be implemented without approval of the Chemsol Site Project Coordinator.

**Air Stripper Failure** – In the event of the failure of one of the two air strippers, the system may be operated with only one unit in service. Maximum air flow for each stripper is 350 CFM, therefore air flow should be set at that level for the stripper in operation. During operation with one air stripper,

increased process control testing of VOCs after the lead activated carbon unit should be implemented as increased activated carbon consumption may result from incomplete air stripping. Alternatively, the treatment plant could be operated at a lower forward flow for a short period of time, as determined by the Chemsol Site Project Coordinator.

**Multimedia Filter Failure** – The system may be operated for extended periods without the multimedia filters in the event of a failure of these units. Bypassing of these units will result in the need for increased backwashing of the activated carbon units and likely increased activated carbon consumption due to fouling of the carbon.

The multimedia filters are designed to handle 57 gpm individually. If only one unit were to fail, the other operable unit could be utilized to filter the entire treatment plant forward flow (up to a maximum of 57 gpm). In doing so, backwashing frequency for the filters would increase. Additionally, as there would only be one filter operational, during backwashing operations, the treatment plant forward flow would be temporarily interrupted and the level in T-1 should be reduced prior to backwash to provide storage for groundwater collected during the backwash cycle. Following backwashing, the plant forward flow would be increased slightly to reduce the level in T-1 to within the normal operation range.

### ***3.8 Equipment Replacement Schedule – Treatment System***

There is no schedule for regular equipment replacement for treatment system components. As indicated in section 3.6, components are replaced as necessary based on performance and regular inspections that occur at each site visit, which is a minimum of three times per week.

## 4.0 O&M Activities Schedule

Table 2 provides a schedule of treatment plant operation and maintenance tasks and identifies the minimum frequencies of each task. These tasks are to be supplemented at the direction of the project manager and/or lead operator as the need arises. The frequency of the tasks may also be increased as necessary based on operating experience. See Section 5 of the 1995 O&M manual for additional maintenance operation and maintenance details.

**Table 2 – O&M Activities Schedule**

UNIT PROCESS	TASK DESCRIPTION	FREQUENCY
General Operations	Collect O&M readings using data operations report form	3 Times per Week
Extraction System	Inspect the force main leak detection risers and extraction well enclosures. Record liquid level in leak detection risers, if any, prior to startup and at each inspection.	Weekly
Off Gas Treatment	Change the chart paper on the forward flow and Catox recorders	Weekly
Extraction System	Check the flow rates from each of the extraction wells and adjust to meet the set points	Weekly
General Operations	Test operation of containment sump pumps	Weekly
Solids Handling	Operate the plate and frame press to dewater sludge accumulated in T-9	As Needed
Activated Carbon Adsorption	Backwash the lead GAC unit as necessary, when the differential pressure is above 5 PSID	As Needed
Air Stripping	Clean trays and demister pad when DP exceeds 7" WC per tray	As Needed
Off Gas Treatment	Calibrate the scrubber pH & conductivity probes	Quarterly
Air Stripping	Disassemble and clean the flow meters that record forward flow	Quarterly
Air Stripping	Change the tubing in the chlorine feed pump	Quarterly
Air Stripping	Inspect and clean or replace blower air filter	Quarterly
Air Stripping	Clean the sump sight glasses and level transducers on the air stripping units.	Quarterly

UNIT PROCESS	TASK DESCRIPTION	FREQUENCY
General Operations	Check the oil level on each of the centrifugal pumps and refill as necessary	Quarterly
General Operations	Backflow Preventer Testing	Quarterly
Off Gas Treatment	Shut down the Catox for maintenance: <ul style="list-style-type: none"> <li>• Check/replace flame igniter, spark plug and rod</li> <li>• Check catalyst</li> <li>• Check blower and automatic valves for proper operation</li> </ul>	Semi-annually
Off Gas Treatment	Drain the scrubber sump tank for maintenance: <ul style="list-style-type: none"> <li>• Check pH and conductivity probes, clean and inspect</li> <li>• Check level probes for proper operation</li> <li>• Test interlocks for high and low level sump conditions</li> <li>• Clean accumulated salt deposits from tank</li> </ul>	Semi-annually
General Operations	Accuracy check of the influent and effluent flow meters, calibrate per manufacturer's instructions	Semi-annually
General Operations	Cleanout of tanks T-1 and T-7	Semi-annually
Air Stripping	Grease motor and blower bearings with NLGI#2	Annually

In addition to the routine operation and maintenance activities presented in Table 2 above, Table 3 below presents a summary of the preventative maintenance activities and schedules.

**Table 3 – Preventative Maintenance Task Schedule**

UNIT	TASK DESCRIPTION	FREQUENCY
T-1	Vessel Clean/Inspect - Remove from service, drain, pump all sludge to T-9, wash down and visual inspection.	Semiannual
T-7	Vessel Clean/Inspect - Remove from service, drain, pump all sludge to T-9, wash down and visual inspection.	Semiannual
Catox/Scrubber	Control Panel PM - Inspect all terminals in CATOX and Caustic Scrubber for tightness and signs of excessive corrosion -Replace corroded terminals as required -Restore Power	Annual
Catox/Scrubber	Annual Catox Maintenance - Shut system down and force draft to cool. Remove and inspect catox burner, clean. Replace spark ignitor and flame rod. Clean burner compartment, replace door flat and rope type gasketing.	Annual
Catox/Scrubber	Annual Scrubber Maintenance - shut down, drain sump, remove cover and flush sump to remove residue. Remove and clean sump level electrodes. Refill/restart.	Annual
Catox/Scrubber	pH instrument calibration	Quarterly
Catox/Scrubber	Conductivity instrument calibration	Quarterly
T-1 Level Instrument	Calibration/verification	Annual
T-7 Level Instrument	Calibration/verification	Annual
T-9 Level Instrument	Calibration/verification	Annual
T-11 Level Instrument	Calibration/verification	Annual
T-12 Level Instrument	Calibration/verification	Annual
Air Stripper A Level	Calibration/verification	Annual
Air Stripper B Level	Calibration/verification	Annual
Air Stripper A Airflow	Calibration/verification	Annual
Air Stripper B Airflow	Calibration/verification	Annual
Air Stripper A DP	Calibration/verification	Annual
Air Stripper B DP	Calibration/verification	Annual
Catox Airflow	Calibration/verification	Annual
MM Filter A DP	Calibration/verification	Annual
MM Filter B DP	Calibration/verification	Annual
GAC Unit A DP	Calibration/verification	Annual
GAC Unit B DP	Calibration/verification	Annual
GAC Unit C DP	Calibration/verification	Annual
UNIT	TASK DESCRIPTION	FREQUENCY

GAC Unit D DP	Calibration/verification	Annual
Influent Flow Meter	Calibration/verification	Annual
Air Stripper A Flow Meter	Calibration/verification	Annual
Air Stripper B Flow Meter	Calibration/verification	Annual
Effluent Flow Meter	Calibration/verification	Annual
EX-1UP Flow Meter	Calibration/verification	Annual
EX-2P Flow Meter	Calibration/verification	Annual
EX-3L Flow Meter	Calibration/verification	Annual
EX-4P Flow Meter	Calibration/verification	Annual
PC/PLC	System check, file maintenance	Annual
Air Compressor	Lube/Filters/Belts	Quarterly
Centrifugal Pumps - 11 units	Lube	Annual
Filter Press	System check, hydraulics and operation	Annual
Building Roof Fans	Fan Inspection - inspect the roof ventilators and drive belts. 30 foot extension ladder required, belts 25 AX to install if required. Wasp spray required.	Annual
Backflow Preventers	Backflow Preventer Testing - by qualified licensed tech	Quarterly
Caustic Pump	Remove and clean check valves	Annual
Chlorine Pump	Change tubing	Annual
Air Stripper A	Change blower air filter	Semiannual
Air Stripper B	Change blower air filter	Semiannual
Air Stripper A	Grease blower motor with NLGI #2 Grease	Annual
Air Stripper B	Grease blower motor with NLGI #2 Grease	Annual
Effluent Line	Check condition	Annual
Grounds / Fenceline	Walk grounds and perimeter fence line	Semiannual
Floor Sump	Cleanout sump and inspect pumps	Annual

## 5.0 Monitoring and Permit Compliance

Monitoring of the groundwater extraction and treatment system will be performed to assess operations and compliance with permits and approvals. Monitoring components are as follows:

- Hydraulic monitoring per the Long-Term Monitoring Plan (LTMP) for compliance with the capture zone requirement (i.e., on-site capture per USEPA design approval).
- Water quality monitoring for trend analysis per the LTMP.

- Water quality monitoring for compliance with the site's NJPDES permit for discharge to surface water.
- Monitoring for compliance with the site's air permit.

Hydraulic and water quality monitoring associated with the groundwater extraction system zone of capture and water quality trend analyses are described in the attached LTMP. Monitoring data from the LTMP will be reported on a semi-annual basis. To integrate the plant operation with the LTMP, the plant operator will submit to the Chemsol Site Project Coordinator on a quarterly basis the a summary of data from the PLC-based operating system and effluent monitoring program. See Section 6.4.1 for details

Treatment plant effluent monitoring will be performed in accordance with the site's NJPDES permit for discharge to surface water. In addition, operations monitoring is performed at intermediate times and locations to assess plant performance relating to compliance with the NJPDES permit. This monitoring is for operational guidance not compliance. Table 3 provides a schedule of treatment plant monitoring tasks and identifies the frequency of each task. Sampling will be conducted in accordance with the treatment plant Sampling Analysis and Monitoring Plan, described in Section 5 of the 1995 O&M manual, as amended by Table 3. A copy of the current surface water discharge permit equivalent is attached for reference.

**Table 3 – Treatment Plant Monitoring Schedule**

TASK DESCRIPTION	LOCATION	FREQUENCY	PARAMETERS
Process Control Sampling/Testing	Lead GAC Inlet	Weekly	Chlorine residual
Process Control Sampling/Testing	T-1	Monthly	NJPDES Permit Parameters (VOCs, partial SVOCs, pH, TSS)
Process Control Sampling/Testing	Lead GAC Outlet	Monthly	VOCs, partial SVOCs
NJPDES Effluent Compliance Sampling	T-12	Monthly	NJPDES Permit Parameters (VOCs, SVOCs, pH, TSS)
NJPDES Effluent Compliance Sampling	T-12	Quarterly	NJPDES Permit Parameters plus chronic toxicity
NJPDES Effluent Compliance	P-13 Effluent Flow Meter	Monthly	Flow, check and calibrate flow meter per preventative maintenance schedule and manufacturer's instructions

In accordance with the site's NJDEP air permit, monitoring is required for temperature and scrubber flow rate. Temperature monitoring is continuous with records kept within the system. Reporting is only required (within 3 days), if temperature is below the required minimum (900° F). Scrubber flow rate is to be maintained between 12 and 50 gpm, through continuous instrument monitoring, with data stored in the system or manually recorded weekly. Reporting of scrubber flow rate is not required. The plant operator shall maintain plant control records in accordance with Section 6.2.1. A copy of the current air permit equivalent is attached for reference.

## 6.0 Records and Reports

The records and reporting requirements in this section have been adapted from the original 1995 O&M manual and have been updated to reflect current requirements. The records and reporting requirements below supersede those described in the 1995 O&M manual.

## **6.1 Physical Records**

A complete set of record drawings of the treatment plant and the groundwater collection facilities should be maintained at the treatment plant for ready reference by the operating personnel.

A bound set of the technical sections of the construction specifications for the treatment plant and the collection facilities should be maintained in a secure location at the treatment plant for ready reference by the operating personnel.

A copy of the Remedial Design Report containing the technical basis of the plant design, design calculations and related technical data and a copy of the Remedial Construction Report documenting the construction of the treatment plant and extraction system, along with modification of the design, should be maintained at the treatment plant for study and reference by operating personnel.

A complete set of approved shop drawings, manufacturers' brochures, O&M manuals and related submittal data should be maintained at the treatment plant for ready reference by operating and maintenance personnel. Manufacturer O&M manuals for major equipment items are included as appendices to this O&M manual.

Records of the equipment used in the treatment plant and associated facilities are maintained on Equipment History Cards, as described and illustrated in Section 5.0 of the 1995 O&M manual.

## **6.2 Plant Operating Records**

Plant operating records are the recorded results of observations, tests, and measurements performed in the operation and maintenance of the groundwater collection and treatment facilities. Data to be recorded and maintained should be only the data necessary to control the treatment processes and to record the operating conditions.

### **6.2.1 Plant Control Records**

The wastewater treatment plant control records consist of the operators' log, and records for process control.

The operating log is maintained by the operator as a regular record of the general treatment plant operating conditions, completed on each O&M visit. Recorded data include weather, groundwater flows, chemical usage, and operational status. Maintenance/repairs accomplished and operational problems encountered are entered as noted on the operator's log, some of which may be an automated process through the PLC.

Process control data should also be maintained on a regular basis showing the results of regulatory tests and observations made on the groundwater process flows in the treatment process. One of these

records is the automatically recorded reading of influent flow rates. See Section 4 and 5 for additional information on O&M activities and monitoring activities related to permit compliance.

### ***6.2.2 Laboratory Records***

Permanent records of laboratory tests must be kept on forms designed for that purpose. These records should contain the test results of all tests, analyses, and observations pertaining to the plant operation (see 1995 O&M manual Section 7.2 – Quality Assurance Project Plan and Table 3 in this manual for details).

### ***6.2.3 Maintenance Records***

The details of the maintenance management system are set forth in Section 3 of this Manual and Section 5 of the 1995 O&M manual. The records and forms associated with the maintenance management system are discussed in detail in those sections.

## ***6.3 Plant Administrative Records***

The official personnel and fiscal records relating to the operation and maintenance of the Chemsol treatment plant are maintained by the Chemsol Site Project Coordinator. Supplementary input is provided by the treatment plant O&M Project Manager to the Chemsol Site Project Coordinator for records and reporting. This input is discussed below.

### ***6.3.1 Personnel Records***

The O&M Contractor will track employee work times and attendance, as needed as input to the Chemsol Site Project Coordinator. These records are local control records maintained by the O&M Contractor to record employee attendance. These records are typically maintained off site.

### ***6.3.2 Operating Cost Records***

The plant O&M Project Manager should maintain cost records for proper control of expenditures on a regular basis and to enable the provision of information on plant operating costs when requested. These records supplement the Chemsol Site Remediation Trust accounting and bookkeeping records and provide a basis for budget preparation and support for capital expenditure requests.

## ***6.4 Reports***

### ***6.4.1 Monthly Performance Reports***

The treatment plant O&M Project Manager will prepare a monthly performance report to provide a summary operation and maintenance activities performed and a summary of essential information

collected by the PLC on a daily basis. Monthly performance reports will be submitted to the Chemsol Site Project Coordinator for use in preparing the monthly progress reports for the site.

#### ***6.4.2 Quarterly Data Submittal for LTMP Reporting***

The plant O&M Project Manager will submit to the Chemsol Site Project Coordinator on a quarterly basis for integration with LTMP reporting the following summary of data from the PLC-based operating system and effluent monitoring program:

- Flow rates from each individual groundwater extraction well (average, minimum, and maximum).
- Total down time for any individual extraction well and the treatment plant.
- Dates and times of down time for individual extraction wells and the treatment plant.
- Flow rate from the mass removal wells (average, minimum, and maximum).
- Total system flow during the reporting period (rate and total volume).
- Analytical data reports from permit required monitoring during the reporting period.
- Analytical data reports from operations monitoring used to assess permit compliance, during the reporting period.

## ATTACHMENTS

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# ***Health and Safety Contingency Plan (HSCP)***

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*Prepared For:*

Chemsol Site Remediation Trust

*Project Name:*

Chemsol Superfund Site  
Groundwater Extraction and Treatment System  
O&M Activities  
100 Fleming Street - Piscataway, New Jersey

*Prepared By:*

**Bigler Associates, Inc.**

1 Havenwood Court, Suite 503  
Lakewood, NJ 08701

Authors: Daniel Alesandro, BAI

Daniel Bigler, BAI

Ryan Sullivan, BAI

**REVIEWED AND APPROVED BY:**

BAI Project Director: Daniel Alesandro

November 10, 2010

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## **Chemsol - Health & Safety Contingency Plan (HSCP)**

### **1. Responsibility/Identification of Key Line Personnel**

O&M Contractor: Bigler Associates, Inc.

Address: 2 Main Street – Ridgefield Park, NJ 07660

Telephone: (201) 296-0712

#### **Project Manager**

#### **Contact No.**

#### **Email**

Ryan Sullivan - Primary

(201) 296-0712

[rsullivan@biglerassociates.com](mailto:rsullivan@biglerassociates.com)

Daniel Alesandro - Backup

(201) 296-0712

[dalesandro@biglerassociates.com](mailto:dalesandro@biglerassociates.com)

#### **Service Manager**

#### **Contact No.**

#### **Email**

Louis Jacob - Primary

(201) 296-0712

[ljacob@biglerassociates.com](mailto:ljacob@biglerassociates.com)

Michael Hogan - Backup

(732) 730-8526

#### **Safety Representative/Managers:**

#### **Contact No**

#### **Email**

Gene LaRose - Primary

(201) 296-0712

[glarose@biglerassociates.com](mailto:glarose@biglerassociates.com)

#### **Key Foreperson or Forepersons:**

#### **Contact No.**

Michael Hogan – Lead Electrician/Automation

(732) 730-8526

Ray Jicha – Sr. Mechanic

(201) 296-0712

## ***Chemsol - Health & Safety Contingency Plan (HSCP)***

These personnel have the authority and responsibility for implementing the provisions of this program for:

<b>Chemsol Superfund Site</b>	<b>On-site Contact No.</b>
Ryan Sullivan	(973) 896-8123 (cell)
Louis Jacob	(201) 954-8185 (cell)
Daniel Alesandro	(201) 954-7114 (cell)

All managers and supervisors are responsible for implementing and maintaining the HSCP in their work areas and for answering worker questions about the HSCP. A copy of this HSCP is available at the site.

Bigler Associates, Inc. will have responsibility for site control during all O&M activities, and as a result, all personnel entering the site must comply with provisions that Bigler Associates has established for visitors. However, in all cases, each entity with personnel at the site is solely responsible for the health and safety of its employees.

### ***2. Statement of Contractor's Safety and Health Policy***

Safety is an integral part of business operations at Bigler Associates, Inc. (BAI). Our

Safety Program includes:

- Systematic Policies, Procedures, and Practices;
- Systems for Hazard Identification, Evaluation, and Control;
- Management Commitment to, and Employee Involvement in the Safety Program;
- Environmental Safety and Health Training;
- Medical Surveillance;
- Documentation; and
- Evaluation.

The goals of our Environmental, Health and Safety program are to:

- Ensure a safe working environment for employees, contractors and visitors;
- Minimize waste and prevent pollution of the environment;
- Comply with applicable regulatory requirements; and

### **Chemsol - Health & Safety Contingency Plan (HSCP)**

- Protect the company from liability associated with unsafe working environments.

### **3. Identification of Competent/Qualified Persons**

The following table provides the qualified BAI personnel assigned to this project. Copies of certifications are provided in Appendix A.

Name	Job Title	40-hr HAZWOPER	8-hr HAZWOPER Supervisor	8-hr HAZWOPER refresher	First Aid/CPR
Dan Bigler	President - BAI	9/13/90	NA	11/16/09	NA
Louis Jacob	Service Manager Licensed Electrician	4/30/93	12/19/08	12/3/09	2/27/08
Michael Hogan	Licensed Electrician Instrumentation	2/27/92		11/16/09	
Ray Jicha	Master Mechanic	5/30/08		8/14/09	2/27/08
Dan Alesandro	Backup Project Manager	8/14/92	12/19/08	12/3/09	2/27/08
Ryan Sullivan	Project Manager	2/28/97		1/28/10	2/27/08
Gene LaRose	H&S/Automation	7/16/90		12/3/09	2/27/08
Jason Kiernan	Licensed Operator	7/19/01		11/16/09	
Christian Marshall	Mechanic	7/19/2000	NA	12/3/09	2/27/08
Carlton Poplin	Electrician	3/30/06	NA	12/3/09	2/27/08

- 40-hour HAZWOPER and 8-hour annual refresher certificates – required for general site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazard.
- 8-hour HAZWOPER Supervisor certificate – required for on-site management and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations.
- Respirator Clearance – required for all personnel that may need to wear a half facepiece, full face piece or supplied air respirator, or self-contained breathing apparatus (SCBA). Provide dates of training, medical clearance and fit testing. Include copies of medical clearance and fit testing records in Appendix A.

## ***Chemsol - Health & Safety Contingency Plan (HSCP)***

- CPR/First Aid certification – required in the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.
- Confined Space Entry (Supervisor) certificate – the employer shall ensure that each entry supervisor knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure. Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin. Terminates the entry and cancels the permit as necessary. Verifies that rescue services are available and that the means for summoning them are operable. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations. Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

#### **4. Scope of Work Evaluation**

The work activities that will take place are described below. BAI performs all O&M activities, no significant subcontractor work is anticipated.

##### Major Activities of O&M Contractor

1. Routine operation and inspection of process equipment
  - a. Equipment inspection, adjustment, data collection
  - b. Sampling
  - c. Chemical Transfer
2. Preventative and Corrective Maintenance

#### **5. Hazard/Risk/Exposure Assessment**

Major hazards or risks and exposures associated with the scope of work evaluation are listed below. For each major activity listed, an Activity Hazards Analysis (AHA) has been developed and is included in Section 6.

The major activities for this project and associated hazards are described below:

##### ***Routine O&M Procedures (Equipment Inspection, Adjustment and Data Collection)***

These routine O&M activities involve close inspection of all operating equipment both in the treatment system building and at the well heads.

##### Hazards

The hazards associated with these activities can be physical, biological, and chemical.

Physical hazards include but may not be limited to:

- Slip and trip hazards;
- Freezing/rainy weather hazards causing slick or irregular walking surfaces;
- Falls from elevation;
- Caught between or under equipment or materials; and,

## ***Chemsol - Health & Safety Contingency Plan (HSCP)***

- Struck by tools/equipment/materials.

Biological hazards include ticks or other insect bites and exposure to poison ivy or oak.

Chemical hazards include possible exposure to contaminated groundwater potentially containing site-related contaminants including: acetone, benzene, bis(2-chloroethyl)ether, carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,2-dichloroethane, methylene chloride, phenol, tetrachloroethene, toluene, 1,1,1-trichloroethane, trichloroethene, vinyl chloride and xylenes.

### ***Sampling***

This task involves collection of process control and permit compliance samples from sample taps on system piping.

#### **Hazards**

The hazards associated with these activities can be physical and chemical.

Physical hazards include but may not be limited to slips and trips.

Chemical hazards include possible exposure to contaminated groundwater potentially containing site-related contaminants including: acetone, benzene, bis(2-chloroethyl)ether, carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,2-dichloroethane, methylene chloride, phenol, tetrachloroethene, toluene, 1,1,1-trichloroethane, trichloroethene, vinyl chloride and xylenes.

### ***Receiving Supplies and Materials including Chemical Transfer***

This task involves transferring receiving spare parts, supplies and transfer of chemicals in bulk from a tank truck to a storage tank.

#### **Hazards**

The hazards associated with these activities can be physical and chemical.

Physical hazards include but may not be limited to:

- Slip and trip hazards;
- Caught between or under equipment or materials;

## **Chemsol - Health & Safety Contingency Plan (HSCP)**

- Struck by tools/equipment/materials; and,
- Manual lifting or carrying heavy materials.

Chemical hazards include possible exposure to Sodium Hydroxide or Sodium Hypochlorite

### ***Preventative and Corrective Maintenance***

This task involves routine scheduled maintenance such as oil changes as well as unscheduled maintenance for repairs.

### **Hazards**

The hazards associated with these activities can be physical, biological, and chemical

Physical hazards include but may not be limited to:

- Slips and trips;
- Freezing/rainy weather hazards causing slick or irregular walking surfaces;
- Falls from elevation;
- Caught between or under equipment or materials;
- Struck by tools/equipment/materials;
- Manual lifting or carrying heavy materials;
- Pulling or pushing objects and materials;
- Hand tools;
- Vehicle incidents;
- Cold stress;
- Heat stress;
- Electrical hazards
- Hot work (welding/burning); and,
- Noise exposure.

Chemical hazards include possible exposure to contaminated groundwater and/or soils (i.e., drill cuttings) potentially containing site-related contaminants including: acetone, benzene, bis(2-

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chloroethyl)ether, carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,2-dichloroethane, methylene chloride, phenol, tetrachloroethene, toluene, 1,1,1-trichloroethane, trichloroethene, vinyl chloride and xylenes.

Biological hazards include ticks or other insect bites and exposure to poison ivy or oak.

### **6. Control Measures/Activity Hazard Analysis**

An Activity Hazard Analysis (AHA) for each major activity listed in Section 5.0 is provided in Appendix B. Procedures for specific health and safety activities are provided below.

The AHAs provided with this manual may be revised and updated based on monitoring results and information that becomes available during construction activities. Most AHAs are provided with this document in draft form.

A copy of the BAI Corporate Health & Safety Program is included as Appendix D. This manual includes detailed versions of the safety procedures that will be required for this project. The following section provides detailed descriptions of safety programs that apply specifically to this project. When there is a discrepancy, the provisions of the Site Health & Safety Contingency Plan apply. BAI subcontractors, Code and Summit, will each submit Health & Safety Plans that are specific to their scope of work. The provisions of these plans will be reviewed and with approval, be incorporated into the Site Health & Safety Contingency Plan as appendices.

#### **6.1 CHEMICAL HAZARD EXPOSURE CONTROL**

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Chemical hazards of concern include site related contaminants including acetone, benzene, bis(2-chloroethyl)ether, carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,2-dichloroethane, methylene chloride, phenol, tetrachloroethene, toluene, 1,1,1-trichloroethane, trichloroethene, vinyl chloride and xylenes primarily found in groundwater. Chemical hazards also are from chemicals used in the treatment process including, sodium hydroxide, nitric acid and sodium hypochlorite. The primary site-related chemicals of concern are benzene, vinyl chloride, 1,2-dichloroethane which are all volatile compounds all having a PEL/TLV of 1 ppm. The primary pathways of concern are inhalation, ingestion and skin contact when exposed to contaminated groundwater or equipment. See Table I in Appendix E for summary assessment of chemical hazards. Vapor releases of volatile organic compounds (VOCs), such as benzene, may occur during maintenance operations. Action levels for VOCs have been established to provide protection from exposure to the specific constituents. Air monitoring for volatile organic

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compounds will provide the necessary data to assess personal protection needed to conduct the work.

Section 6.1.2 provides the monitoring equipment and the action levels. Work will be stopped, Project Manager contacted, and the hazards will be evaluated before Level C respiratory protection is implemented, and if instrument readings exceed the action levels specified in Section 6.1.2.

The following sections describe the level of personal protective equipment (PPE) for each task associated with the planned construction activities for this project.

### ***6.1.1 PERSONAL PROTECTIVE EQUIPMENT***

The following PPE will be used during the major work activities as described below.

#### ***Routine Operations and Inspection of Equipment***

Work tasks performed during routine O&M activities will be performed in Level D as summarized below:

- Hard hat;
- Safety glasses with side shields;
- Safety work boots/shoes with steel toes;
- Latex or nitrile gloves as necessary
- Hearing protection worn when operating power tools or equipment when:
  - exposed to excessive noise levels greater than 85 dBA over an 8-hour work period); or
  - exposed to continuous, intermittent or impact noise, in excess of 140 dB without hearing protection, should not be allowed .

Hearing protection must have a Noise Reduction Rating (NRR) of at least 20 when noise levels exceed 85 dBA.

If personnel may be exposed to potentially contaminated groundwater, then PPE may be upgraded to a modified Level D PPE, which will include Level D PPE as listed above plus:

- Disposable latex over boots or heavy rubber outer boots as necessary.

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- Latex or nitrile gloves;
- Tyvek coverall or Polyethylene-coated Tyvek coverall (for wet environments) as necessary.

### ***Preventative and Corrective Maintenance***

Work tasks performed during preventative and corrective maintenance activities will be performed in Level D as summarized above. If personnel may be exposed to potentially contaminated groundwater, then PPE may be upgraded to a modified Level D PPE, which will include Level D PPE as listed above plus:

- Disposable latex over boots or heavy rubber outer boots as necessary.
- Latex or nitrile under gloves; nitrile over gloves or leather work gloves for hand protection if exposed to sludge as necessary.
- Tyvek coverall or Polyethylene-coated Tyvek coverall (for wet environments) as necessary.

If air monitoring action levels are exceeded, then work will be stopped immediately and PPE will be upgraded to Level C PPE. Level C protection will consist of modified Level D PPE plus the following additional or upgrade of equipment:

- PVC or nitrile inner and nitrile outer gloves. Full-face air-purifying respirator – with particulate and organic vapor cartridges

Air purifying respirators cannot be worn under the following conditions:

- Oxygen deficiency;
- IDLH concentrations; and
- If contaminant levels exceed designated use concentrations.

### ***6.1.2 AIR MONITORING & ACTION LEVELS***

Air monitoring will be conducted before start of any intrusive maintenance work establish baseline data and during maintenance activities when there is exposure to potentially contaminated groundwater or materials. Air monitoring will be conducted in close proximity to the workers' breathing zones or as close to these areas as practical. Air readings will be collected at 15 minute intervals initially. The frequency of monitoring may be modified by the site H&S Manager or Project Manager depending on measurements and specific task hazard assessment. All air monitoring equipment will be calibrated in accordance with manufacturer's recommendations before each use. The units will be leased from a supplier who will provide

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backup devices during maintenance periods. The monitoring results will dictate the selection and appropriateness of PPE. The monitoring device to be used is:

- Photoionization Detector (PID);

PID readings shall be sustained readings of 30 seconds or more. Three consecutive readings above the action level noted below will provide the basis for taking the appropriate action; e.g. use of Level C PPE, and/or forced ventilation. The level of personal protection may be upgraded to Level C if the following condition exists:

- PID readings >1 ppm above background;

If the above reading is recorded, the Foreman must consult with the Safety Manager or Project Manager to discuss the options: (1) don Level C protection and continue; or (2) stop work and wait until the concentration of volatile compounds or particulates falls below the above action levels.

### ***6.1.3 MEDICAL SURVEILLANCE***

All on-site project personnel shall have completed a comprehensive medical examination within the past 12 months that meets the requirements of OSHA Regulation 29 CFR 1910.120. The annual medical includes the following elements:

- Medical and occupational history questionnaire;
- Physical examination;
- Chest X-ray once every three years for non-asbestos workers (optional);
- Pulmonary function test;
- Audiogram;
- Electrocardiogram for persons older than 35 years of age, or if indicated during physical examination;
- Visual acuity; and
- Follow-up examinations, at the discretion of the examining physician or the corporate medical director.

The examining physician provides the employee and employer with a letter summarizing his findings and recommendations. Each employee also has the right to inspect and copy his medical records.

The examining physician provides the employer with a letter confirming the worker's fitness for work and ability to wear a respirator. A copy of this letter for all project workers will be kept for a minimum period of thirty years.

#### **6.1.4 WORK ZONES AND DECONTAMINATION**

Work zones are considered to be potentially contaminated whenever intrusive maintenance activities are undertaken. Decontamination procedures will be followed if air monitoring confirms the presence of volatile compounds during work activities. Potable water is available in the treatment building for decontamination operations. All decontamination water is to be discharged into the building containment sump for re-processing.

### **6.2 SAFETY EQUIPMENT**

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#### Medical Response Equipment

The following medical response equipment shall be available on site. The locations of these equipment stations shall be properly labeled, and made known to all employees.

- Safety Shower and Eyewash Stations:

An emergency shower and eye wash station is located inside of the treatment building adjacent to the laboratory. This station shall be inspected periodically to ensure proper operation.

- First Aid Kit:

The first aid kit is located in the treatment plant Control Room. The locations of the eyewash/safety shower and the first aid kit and the procedures for using and reporting an incident shall be presented during the initial on-site training. BAI will make all personnel aware of the locations and use of this equipment prior to engaging in site work activities.

#### Fire Safety Equipment

Adequate fire extinguishing equipment must be in place and readily accessible at all hot work locations, and at fixed locations at the treatment plant. Employees must be properly trained in the use of such equipment. Fire safety equipment must be properly maintained and tested to comply with the fire certificate. All fire extinguishers will be inspected on a regular basis in accordance with manufacturer recommendations. Inspection tags will be affixed to each extinguisher and inspectors will initial and date the tags at each inspection.

### **7. Periodic Safety Inspections/Audits**

Periodic inspections to identify and evaluate on-going workplace hazards shall be performed by the following competent persons or observers in the following areas of our workplace:

Competent Person/Observer

Area of Expertise/Responsibility

Gene LaRose

BAI Safety Officer

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Ryan Sullivan

Project Manager

Periodic inspections are performed according to the following schedule:

- Quarterly – by the Safety Officer or Project Manager or his/her designee;
- When new substances, processes, procedures or equipment which present potential new hazards are introduced into our workplace;
- When new, previously unidentified hazards are recognized;
- When occupational injuries and illnesses occur;
- When personnel are hired and/or reassigned permanent or intermittent workers to processes, operations, or tasks for which a hazard evaluation has not been previously conducted; and
- Whenever workplace conditions warrant an inspection.

Periodic inspections consist of identification and evaluation of workplace hazards.

### **8. *Compliance Requirements Policy***

Management is responsible for ensuring that all safety and health policies and procedures are clearly communicated and understood by all employees. Managers and supervisors are expected to enforce the rules fairly and uniformly.

All employees are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment.

Our system of ensuring that all workers comply with the rules and maintain a safe work environment includes:

- Site orientation;
- Informing workers of the provisions of our HSCP;
- Evaluating the safety performance of all workers;
- Recognizing employees who perform safe and healthful work practices;
- Providing training to workers whose safety performance is deficient;
- Disciplining workers for failure to comply with safe and healthful work practices; and
- Performing periodic health and safety meetings.

## **9. *Written Progressive Disciplinary Program***

Workers are responsible for their own safety as well as for the safety of others. Accidents are preventable, and work-related injuries are a very serious matter, as are all safety violations whether or not an injury occurs. BAI's primary goal is to perform all work in a safe and healthful manner. BAI realizes that employees may not completely understand and comply with all safety procedures. Management works in partnership with employees to promote safety by implementing work hazard analysis, providing appropriate PPE, monitoring safety compliance, and addressing safety concerns raised by personnel. To this end, a system of disciplinary actions has been developed to help attain this goal.

A progressive disciplinary program will be implemented that involves training, verbal and written warnings, and finally disciplinary action including suspension and termination from the company. The primary purposes of the disciplinary program are to correct problematic behavior, prevent recurrence, and prepare the employee for safe and satisfactory service in the future. Accidents and on-the-job injuries are not themselves the basis for disciplinary measures, but the behavior underlying the safety violation leading to the event can give rise to disciplinary measures. The individual's conduct or behavior, rather than the outcome, is the primary consideration in the need for and the level of discipline.

All BAI employees receive the appropriate health and safety training to perform their jobs in a safe manner. It is the responsibility of both the Project Manager, Health and Safety Manager and Service Manager to reinforce this training by example and by correcting the employee when the individual is in violation of a particular rule or procedure. This informal reinforcement enables the employee to understand the rule and thus gain the individual's cooperation and compliance. When a more formal procedure becomes warranted, a formal verbal warning will be issued. The next step is a written warning that is placed in the employee's personnel file. If the inappropriate behavior persists, then either a suspension without pay or termination from the company will occur. In the case of a major violation of safety rules or procedures, an employee will be immediately removed from the job.

## **10. *Hazard Correction Policy***

Unsafe or unhealthy work conditions; practices or procedures shall be corrected in a timely manner based on the severity of the hazards. Hazards shall be corrected according to the following procedures:

- When observed or discovered;
- When an imminent hazard exists which cannot be immediately abated without endangering employees or property, all exposed workers will be removed from the area except those necessary to correct the existing condition. Workers necessary to correct the hazardous condition shall be provided with the necessary protection; and
- All such actions taken and dates they are completed shall be documented on the appropriate forms.

## **11. Training and Instruction Policy**

All workers, including managers and supervisors, shall have training and instruction on general and job-specific safety and health practices. Training and instruction shall be provided as follows:

- When the HSCP is first established;
- To all new workers;
- To all workers given new job assignments for which training has not previously provided;
- Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;
- Whenever the employer is made aware of a new or previously unrecognized hazard;
- To supervisors to familiarize them with the safety and health hazards to which workers under their immediate direction and control may be exposed; and,
- To all workers with respect to hazards specific to each employee's job assignment.
- Workplace safety and health practices for all locations include, but are not limited to, the following:
  - Explanation of the employer's safety program, emergency action plan and fire prevention plan, and measures for reporting any unsafe conditions, work practices, injuries and when additional instruction is needed;
  - Use of appropriate clothing, including gloves, footwear, and personal protective equipment;
  - Information about chemical hazards to which employees could be exposed and other hazard communication program information;
  - Availability of toilet, hand-washing, and drinking water facilities; and
  - Provisions for medical services and first aid including emergency procedures.

In addition, we provide specific instructions to all workers regarding hazards unique to their job assignment, to the extent that such information was not already covered in other training.

## **12. Project Site Employees Orientation Program Subjects**

As a condition of working on a remediation project involving the potential for exposure to hazardous substances and health hazards, our workers will receive information about the following subjects:

- Names of personnel responsible for site safety and health;
- Reporting emergencies, incidents and unsafe conditions;
- Emergency/evacuation plans;
- Safety, health and other hazards at the site;
- Review of all activities on site and related Activity Hazard Analyses (AHAs);
- Proper use of personal protective equipment;
- Work practices by which a worker can minimize risk from hazards;
- Safe use of engineering controls and equipment on site;
- Acute effects of compounds at the site; and,
- Decontamination procedures.

In addition to the above-mentioned information, we also orient our employees using the BAI Health & Safety Manual. All BAI employees are required to review and sign off on the manual (as having read and understood it). This manual is attached to this site specific HSCP as Attachment D. The BAI manual includes the items listed below as well as additional issues that may be of concern for this project.

- Client safety requirements
- The employer's code of safe practices – good housekeeping
- Road and highway safety practices – flagging, traffic control
- Heavy equipment operation – cranes, excavators, articulating dump trucks, etc
- Driver safety - defensive driving, operation of pick-up trucks and ATVs
- Ladder safety
- Fire prevention
- Cleaning, repairing, servicing and adjusting equipment and machinery
- Proper use of powered tools

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- Guarding of belts and pulleys, gears and sprockets, and conveyor nip points
- Machine, machine parts, and prime movers guarding
- Lockout/tagout procedures
- Materials handling.
- Chainsaw and other power tool operation.
- Unsafe weather conditions – lightning, high winds
- Mobilization/demobilization – yard operations, running lines, etc.
- Landing and loading areas - release of rigging, landing layout, moving vehicles and equipment, truck locating, loading and shipping
- Use of elevated platforms – condors, aerial lifts and scissor lifts
- Ergonomic hazards - proper lifting techniques
- Personal protective equipment
- Hazardous chemical exposures
- Hazard communication
- Physical hazards - heat and cold stress, noise, and ionizing and non-ionizing radiation
- Biological hazards – poisonous plants/vegetation, animals, blood borne pathogens, etc.

### ***13. Employee Communication System and Policy***

We recognize that open, two-way communication between management and staff on health and safety issues is essential to an injury-free, productive workplace. The following system of communication is designed to facilitate a continuous flow of safety and health information between management and staff in a form that is readily understandable and consists of one or more of the following checked items:

- New worker orientation including a discussion of safety and health policies and procedures;
- Review of our HSCP and BAI Corporate Safety Program ;
- Workplace safety and health training programs;
- Regular weekly and daily safety meetings;
- Effective communication of safety and health concerns between workers and supervisors, including translation where appropriate;

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- Posted or distributed safety information; and,
- A system for workers to anonymously inform management about workplace hazards.

### ***14. Recordkeeping Policy***

We have taken the following steps to document implementation of our HSCP:

- Records of hazard assessment inspections, including the persons conducting the inspection, the unsafe conditions and work practices that have been identified and the action taken to correct the identified unsafe conditions and work practices, are recorded on a hazard assessment and correction form;
- Documentation of safety and health training for each worker, including the worker's name or other identifier, training dates, types of training, and training providers are recorded on a worker training and instruction form; and,
- Other records are retained as required by contract specifications or by local, state or federal (OSHA regulations). Where regulations do not specify the length of records retention, a period of three years after project completion will be used.

### ***15. Incident/Near-Miss Incident Investigations Policy***

Procedures for investigating workplace incidents and near-miss incidents include:

- Responding to the incident scene as soon as possible;
- Reporting incidents and near-miss incidents immediately to the appropriate Parsons point-of-contact;
- Interviewing injured workers and witnesses;
- Examining the workplace for factors associated with the incident/near-miss incident;
- Determining the cause of the incident/near-miss incident;
- Taking corrective action to prevent the incident/near-miss incident from reoccurring;
- Recording the findings and corrective actions taken; and,
- Post-accident substance abuse testing.

### ***16. Emergency Action Plan***

BAI personnel will follow an Emergency Action Plan for the Chemsol Superfund Site that provides procedures to be followed and identifies persons to be notified when an unanticipated

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emergency event occurs at the site. The potential for an emergency situation to occur while work is being completed at the site is considered to be low.

### **Site Evacuation Procedures**

If an emergency event occurs, declaration of the emergency will be made by a designated site emergency coordinator (HSO), Louis Jacob, Service Manager, Ryan Sullivan, Project Manager, or their designees.

All personnel at the site will be notified of the need to exit immediately and appropriately assemble outside the work area for personnel accounting and issuance of further instructions. If required, arrangements for decontamination, evacuation, and/or transportation will be coordinated from that location.

- Evacuation will proceed along pre-established routes determined by the Safety Officer and Foreman. Evacuation routes will be amended as determined by site activities.
- Initial and amended evacuation routes will be presented to site workers and visitors during the daily safety meetings.
- The evacuation route will terminate in a pre-designated assembly area where personnel will gather. Workers and other authorized site personnel will be assigned to an assembly area.
- The assembly area will have an assigned emergency coordinator who will be responsible for identifying each person in the area. The coordinator will identify unaccounted for personnel who will then alert the Site Foreman. This information will be passed on to rescue and emergency personnel, as needed.

In the event of an emergency, all personnel will be notified immediately to call 911. Contact numbers for various community emergency services, if needed, are provided below.

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<u>AGENCY</u>	<u>CONTACT</u>	<u>PHONE NUMBER</u>
Fire Department	New Market Fire Co. 801 S Washington Ave	911 732-752-5161
Local Police Department	Piscataway PD 555 Sidney Rd.	911 732-562-1100
Hospital Emergency Room	Robert Wood Johnson Med Ctr 1 Robert Wood Johnson Pl New Brunswick, NJ	732-828-3000
Occupational Clinic	Concentra Urgent Care 116 Corporate Boulevard South Plainfield, NJ	866-944-6046
Ambulance	Piscataway EMS 555 Sidney Rd.	911 732-562-1100
Poison Control Center NJ	Poison Info & Ed System 65 Bergen St. Newark, NJ	800-222-1222 973-926-8008
Board of Health	Piscataway Health Dept 455 Hoes Lane, Piscataway	732-562-2323
State Police	278 Prospect Plains Road Cranbury, NJ	973-344-1704

When the services of outside community emergency response agencies are required, the BAI HSO and the responsible outside agency will assume a joint incident command role.

### **17. Site Specific Medical Emergency Plan**

This section describes the medical emergency response plan that will be implemented by BAI employees to handle medical emergencies. In the event of a personal injury accident or medical emergency, the Foreman will assess the nature and seriousness of the injury or medical condition. In the case of serious or life-threatening injuries, normal decontamination procedures may be ignored, if required. Less serious injuries such as strains, sprains, minor cuts, and contusions may only be treated after the employee has been decontaminated, if necessary.

The First Aid Kit is located in the treatment plant Control Room. The Eyewash station is of the pressurized potable water connection type. The Project Manager or other project team member qualified in first aid and CPR will administer suitable first aid. Appendix A provides copies of first-aid/CPR training records of BAI personnel. The Project Manager will then, if necessary, arrange transport to the Hospital, which is approximately 7.5 miles from the site. Directions to the hospital are provided below. The travel route to the area hospital will be posted and easily visible at all times. **In the event of an emergency, call 911.** Community emergency services (EMS, Fire, and Police) will be notified immediately if their resources are needed on site. Contact numbers for community emergency services are provided in Section 17.

#### **DIRECTIONS TO HOSPITAL – Robert Wood Johnson University Medical Center**

1 Robert Wood Johnson Place

New Brunswick, NJ 8901

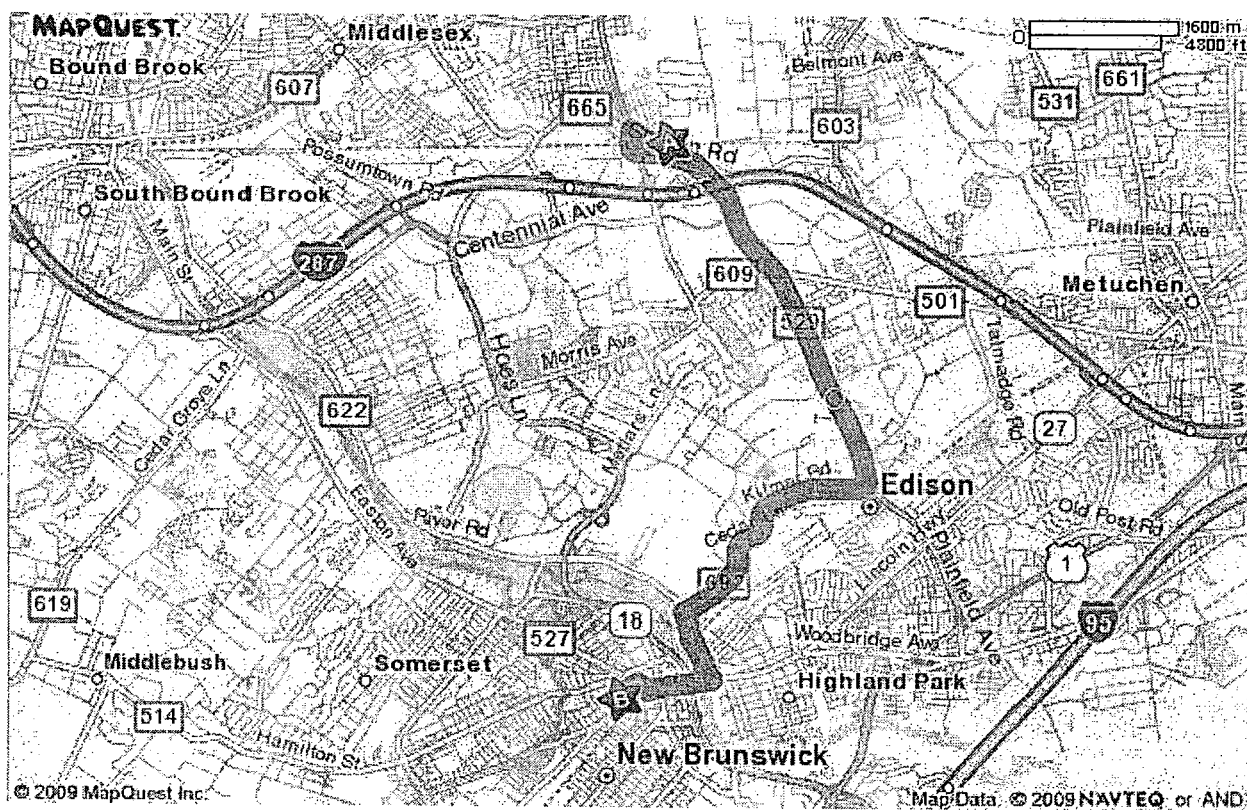
732-828-3000

Driving Distance = approx. 7.5 miles

1. Start out going WEST on FLEMING ST toward CHARTER ST. 0.2 mi
2. Turn RIGHT onto S WASHINGTON AVE. 0.1 mi
3. S WASHINGTON AVE becomes CUMBERLAND RD. 0.0 mi
4. Turn LEFT onto S WASHINGTON AVE/CR-529. Continue to follow CR-529. 4.4 mi
5. Turn RIGHT onto NJ-27/LINCOLN HWY. 0.6 mi

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6. Turn RIGHT onto SUTTONS LN/CR-676. 0.2 mi
7. Turn LEFT onto CAMPBELL AVE. 0.2 mi
8. Turn RIGHT onto NJ-27/LINCOLN HWY. Continue to follow NJ-27 S. 2.0 mi
9. Turn RIGHT onto CR-527/EASTON AVE. 0.1 mi
10. Turn LEFT onto SOMERSET ST. 0.2 mi
11. 1 ROBERT WOOD JOHNSON PL is on the LEFT.



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In the event of an emergency, medical or otherwise, the following BAI individuals are to be contacted:

Position	Name	Telephone Numbers
Project Manager	Ryan Sullivan	(973) 896-8132 (cell) (201) 296-0712 (office)
Health & Safety Officer	Gene LaRose	(201) 954-3987 (cell) (201) 296-0712 (office)

### **18. Hazard Communication Program**

The hazard communication program is the plan by which information and training for hazardous materials and wastes are delivered to or handled by personnel. The principle objectives of this program are to alert employees to potential hazards, to instruct them in how to recognize hazards, and how to protect themselves. It consists of proper labeling, material safety data sheets (MSDS), and employee training. These MSDSs will be kept in a file on site. BAI personnel will review the procedures for handling, using and storing the chemicals brought on-site, and shall review with their personnel the proper procedures for handling, using and storing the chemicals before the product is used on-site. BAI personnel will also review MSDSs on the principal site related chemicals of concern. Hazard communication will be reinforced by worker training, safety meetings, and review of the HSCP.

#### Container Labels

All containers of hazardous materials shall be labeled in accordance with appropriate standards. The labels on containers provided by the manufacturer, importer, or distributor shall be used. Labels affixed to containers of hazardous materials shall:

- Identify the material using a name with which workers are familiar;
- Identify the hazards associated with the material, including toxicity information that indicates symptoms and target organs; and,
- Identify the name, address, and telephone number of the manufacturer, importer, or distributor where more information may be obtained.

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Labels shall meet the requirements of OSHA substance-specific health standards, where required. Labels are not required on portable containers filled from a correctly labeled container if the worker uses the material from that container only during that work shift. However, the subcontractor shall prepare a container label when the contents of the container are not used on the shift during which the container was filled and when the container label is defaced or illegible. The prepared temporary label shall indicate pertinent chemical identification and health information as required by OSHA.

### Material Safety Data Sheets (MSDSs)

All MSDSs shall be maintained by BAI and shall be kept in a site master file. The location of the MSDS file shall be made known to all project employees. If an MSDS is not received at the time of initial shipment of materials, the material may not be used until the MSDS has been obtained from the manufacturer. Employees shall be instructed to notify their Site Manager if an MSDS is not available. When a revised MSDS is received, the Site Manager shall immediately replace the old MSDS.

The complete written hazard communication program is a separate plan and is located in Appendix D.

The following list includes but is not limited to the anticipated MSDSs for chemicals, and products used on this project. In addition to this list, site contaminants (as previously identified) should be included in the site MSDS files.

### Materials/Chemicals

- Sodium Hydroxide
- Nitric Acid
- Gasoline
- 2-Cycle Mixed Fuel
- Diesel Fuel
- Simple Green Degreaser
- Lubricating Oils (if used)
- Calibration Gas (air monitoring equipment)
- PVC Cleaner and adhesive glue
- Pipe joint compound
- Marking Paint

- Oxygen
- Acetylene

### **19. Written Respiratory Protection Program**

All respirators purchased for use by BAI employees shall be NIOSH approved as documented by the manufacturer. Selection criteria will include the following:

- Concentration of contaminant(s);
- Oxygen deficiency;
- Warning properties of contaminant; and,
- The useful life of the cartridge

Respirators shall be used in accordance with manufacturer's instructions and training received. A person wearing a respirator must be clean-shaven in the area of the face-piece seal. Long hair, sideburns, and skull caps that extend under the seal are not allowed. Glasses with temple pieces extending under the seal must not be used with full face APR. Persons with facial conditions that prevent a proper seal are not allowed to wear a full-face respirator until the condition is corrected. Facial conditions which may cause a seal problem include missing dentures, growths, severe acne, etc.

When supplied air is required, breathing air shall meet at least the requirements of the specification for Grade D breathing air or better, except as allowable for blasting and painting operations.

Identification markers must not damage any part of the respirator.

No employee shall be assigned a task requiring the use of a respirator, nor shall an employee be certified as a respirator user, until a physician or other licensed healthcare professional (PLHCP) has determined the employee to be medically able to wear a respirator while performing his/her work. The medical evaluation shall be provided by a PLHCP. An employee questionnaire will be completed before assignment and annually as required. A Pulmonary Function Test (PFT) or other medical examinations or tests will be performed annually, or more frequently as determined by the PLHCP. Following the evaluation, the PLHCP shall provide BAI with a written recommendation regarding the employee's ability to wear a respirator. Such documentation shall include any limitations or restrictions to respirator use. Employees not physically and/or psychologically capable of wearing respirators shall not be assigned to such work. Additional Medical Evaluations will be provided due to any of the following circumstances:

- An employee reports medical signs or symptoms that are related to his/her ability to use a respirator;

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- Information from the respiratory protection program including observations made during fit testing and program evaluation indicates a need for medical reevaluation; and,
- A change occurs in workplace conditions that may result in a substantial increase in the physiological burden placed on an employee.

Prior to working at the Site, all on-site personnel will have received training in the use of, and have been fit tested for a full-face piece respirator. All on-site personnel will be required to comply with their employer-specific written respiratory protection program developed in accordance with OSHA 29 CFR 1910.134.

#### Respirator Fit Testing

The following applies to respirator fit testing.

- Prior to use of any tight fitting air purifying respirator, employees shall be fit tested to ensure proper respirator fit.
- Fit testing shall be performed on an annual basis and documentation of a successful fit test shall be provided.
- During first issue of respiratory protection, employees will be given an opportunity to try a variety of respirators to determine the best available fit. Fit testing thereafter will be performed using the employee's personal respirator.
- All fit tests shall be documented in a format as determined by the President, assisted by the Contract Safety and Health Consultant. Both the employee and person conducting the fit test shall sign and date the form, which will be maintained as a permanent record documenting the fit test.
- Employees will be shown and asked to demonstrate a positive and negative fit check. Employees shall perform a positive and negative fit check each time they wear their respirator.

#### Guidelines for Respirator Storage and Maintenance

- Respirators must be stored to protect against exposure to sunlight, temperature extremes, excessive moisture, and other chemical or physical contaminants.
- At a minimum, respirators should be stored in a clean plastic bag or box, and positioned in such a manner that tools or other supplies will not crush them.
- Respirators should not be left hanging in shops or on pieces of equipment where they are subject to dirt or potential contamination.
- Disposable respirators should be discarded properly after use - not left "hanging about".

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- The wearer shall inspect respirators before and after each use. Inspection should verify the condition of all parts of the respirator. Any respirator found to be deficient must be repaired or replaced prior to employee use.
- Respirators not individually assigned must be inspected before and after each use. Those identified for emergency use must be inspected on a monthly basis and after each use. Such inspections must be documented.
- Personnel who have been trained by the manufacturer's program for maintenance technicians shall perform maintenance on respirators. Replacement parts such as inhalation valves and head straps should be maintained and available to employees as needed. Replacement parts must be available for each brand of respirator used. Substituting parts between manufacturers voids the respirator certification and is prohibited.
- Maintenance performed on a self-contained breathing apparatus shall be done only by an individual who has been certified by the manufacturer to do so.
- BAI shall use cartridges with ESLI's (End of Service Life Indicators) if available for contaminants of concern. If ESLI's are not available then a change schedule based on contaminant, concentration, work activity, and other factors will be developed. In addition, cartridges shall be changed upon any noted "breakthrough" or increased breathing resistance. Breakthrough includes odor, taste, irritation, or burning of the respiratory tract, mouth, nose, or eyes (if wearing a full-face respirator).
- Respirators worn by one individual must be cleaned after each day's use. Multi-assigned respirators must be cleaned and disinfected after each use.
- Only warm soapy water with a clear water rinse should be used to clean respirators.
- A commercially available respirator cleaning solution or a solution of household bleach (2 ml. to one liter of water) may be used for disinfecting respirators. Rinse with clear water and air dry after disinfection.

Respiratory protection for major work activities is provided in Section 6.1. The following practices will be conveyed to all employees and enforced by the Construction Superintendent or Safety Officer:

- Personnel that need to wear respiratory protection on this project, shall have a written respiratory protection program that meets the requirements of the OSHA Standard (29 CFR 1910.134) and has been developed by a Competent Person as defined by OSHA.
- Personnel who may need to wear respiratory protection shall be fit-testing in accordance with 29 CFR 1910.134, medically qualified and trained, as required by the Standard, to use respiratory protection. The Subcontractor shall identify personnel who may use respiratory protection and documentation of fit-testing, medical qualification and training shall be provided for each person who may need to wear respiratory protection on the job.
- Personnel shall review the procedures for the handling, storage and maintenance of respiratory protective equipment to be used on-site, including the process for reporting and

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repairing or replacing defective equipment and the locations where respiratory equipment will be stored.

- BAI will provide employees with adequate respiratory protection as required by each task.
- A respirator of lesser protection than is required for the task/activity may not be used.
- Each employee will change his/her respirator filter at the end of each work shift. BAI will provide an adequate supply of approved filters for daily replacement for each employee's respirator.
- BAI will ensure the adequacy of respiratory protection for his employees based upon the verified results of personal air sampling.
- Each individual who must wear a respirator will be required to be clean-shaven where the sealing areas of the respirator face piece contacts the face.
- All respirators will be cleaned, sanitized, inspected, assembled, and maintained ready for use on a daily basis. Each respirator will be stored in a clean and sanitary container.
- Prior to use, the wearer will inspect the respirator, including the valves, valve covers, nosepiece, straps, eyepiece (for full-face respirators), face piece and its snaps, cylinders, and canisters to insure that the respirator can be worn.
- If a respirator becomes chemically contaminated or malfunctions, the respirator will be replaced by the employer with a clean and sanitized respirator, and the contaminated/defective respirator shall be decontaminated and repaired before reuse, or tagged "out of service" and disposed of.

A complete Respiratory Protection Program is located in Appendix E of this HSCP and in the BAI Health & Safety Manual.

### ***20. Other Written Safety Programs***

Following are descriptions of examples of safety programs (from the full list in the BAI H&S Program) that will certainly apply. Other written programs that may be required for this project are included in the BAI Health & Safety Manual in Appendix D.

#### **Confined Space Program**

A Confined space is large enough and so configured that an employee can bodily enter and perform assigned work; and an area that has limited or restricted means for entry and exit (for example, tanks, vessels, vaults and pits) are spaces that may have limited means of entry, unfavorable ventilation, or is not designed for continuous occupancy. Simply working in a

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confined space is not necessarily a hazard. However, if certain hazardous atmosphere exist prior to, or are created during entry, then the confined space must be treated with utmost care. Hazardous Atmosphere means an atmosphere that may expose

employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes: oxygen deficiency; oxygen enriched; flammable atmosphere; toxic atmosphere; airborne combustible dust at a concentration that meets or exceeds its LEL; and any other atmospheric condition that is immediately dangerous to life or health.

### **Lockout/Tagout**

Whenever maintenance, servicing, or repairs are done to equipment, tools, and machinery, there is a potential for injury from the accidental energization or movement of the equipment. The Lockout/Tagout procedure establishes the minimum safety requirements to ensure the proper deactivation of movable, electrically energized, pressurized equipment and systems, and systems containing hazardous materials prior to repairing, cleaning, oiling, adjusting, or similar work. This procedure applies to all employees and contractors and complies with the requirements in 29 CFR 1910.147 and 1926.417.

### **Fall Protection**

To access high and low places on jobsites a variety of equipment may be used such as

ladders, scaffolding, suspended platforms, and stairways. The use of these access systems often presents fall hazards. In addition, employees may be exposed to falls while working on elevated structures, climbing onto and off of equipment, and even while walking by falling through holes or by slipping or tripping. . To protect employees when they are exposed to fall hazards, some form of fall protection must be used. The most common forms of fall protection are guardrails, personal fall arrest systems, hole covers, and safety nets. The current OSHA standards also require that employees receive training regarding fall protection issues, and that the training is documented.

### **Equipment and Tools**

Hand tools and other power equipment will be used during construction and O&M activities. Proper use and maintenance of this equipment is important for the health and safety of workers. BAI has a procedure for safe use of hand tools and equipment. The purpose of this procedure is to provide for the safe use, inspection, and maintenance of equipment and tools used by BAI employees in accordance with 29 CFR 1910, Subparts O and P and 29 CFR 1926 Subpart I.

BAI's Equipment and Tool Program is provided in Appendix I of this HSCP.

## **21. Contingency Plan**

### **21.1 PURPOSE**

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The purpose of this section is to outline procedures and practices that are to be followed to minimize the effects of unplanned events such as spills, releases, fire, explosion, and various non-emergency type events that may affect the health & safety of site workers and the surrounding community. The provisions of this Plan shall be carried out immediately whenever there is a fire, explosion or release of hazardous constituents which could pose a threat or potential threat to human health or the environment.

### **21.2 PRE-EMERGENCY PLANNING**

---

All site personnel will be trained as to the location of this Plan, the procedures outlined in this Plan, and the communication systems and evacuation routes to be used during an emergency at a Site briefing by BAI before being allowed to work at the Site.

A Site Evacuation Drill will be held periodically for site personnel. The drills will include a review of the roles and responsibilities of all site personnel, the evacuation routes, the location of the emergency assembly area, and the procedures for notification of appropriate response agencies. Because of the nature of the activities at the Site, the emergency assembly area may need to change. If this is necessary, employees will be advised of the new location at the Initial Site Meeting and/or Site Safety Briefings, as appropriate.

On a continual basis, individual personnel should be constantly alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others which warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency.

At all times, there shall be at least one individual at the Site with the responsibility for coordinating all emergency response measures in accordance with this Contingency Plan; this individual is designated as the Emergency Coordinator. The primary Emergency Coordinator, or approved designee having the same authority and responsibility (hereinafter, the "Emergency Coordinator"), shall be thoroughly familiar with the following:

- all aspects of the Plan;
- all operations and activities at the Site;
- the environmental characterization of the Site;
- the location and characteristics of wastes or hazardous materials handled;
- the location of all records (e.g., Material Safety Data Sheets, waste characteristics and previous emergency response reports) within the Site; and,

- the layout of the Site.

Additionally, this person shall have the authority to commit the resources needed to implement the Plan. The on-site Emergency Coordinator shall be the Construction Superintendent.

### **21.3 DECISION TO IMPLEMENT EMERGENCY ACTIONS**

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The decision to implement emergency actions identified in the Plan depends upon whether or not an imminent or actual incident could threaten human health or the environment. The purpose of this section is to provide guidance to the Emergency Coordinator in making this decision. Emergency actions identified in the Plan for the Site will be implemented in the following instances:

#### **1. Fire and/or Explosion**

- a. A fire could cause the release of toxic fumes.
- b. A fire could spread and ignite materials at other locations on-site or could cause heat-induced explosions
- c. A fire could possibly spread to off-site areas.
- d. Use of water and chemical fire suppressant could result in contaminated runoff.
- e. An explosion could occur causing a safety hazard because of flying fragments or shock waves.
- f. An explosion could ignite hazardous materials at the Site.
- g. An explosion could result in release of toxic materials.

#### **2. Spills or Material Releases**

- a. A spill or leak could result in release of flammable liquids or vapors, thus causing a fire or explosive hazard.
- b. A spill or leak could cause the release of toxic liquids or fumes.
- c. A spill could result in on-site soil contamination.
- d. A spill which cannot be contained on-site could result in off-site soil contamination and/or groundwater contamination.
- e. The spill could enter the sewer system.

**3. Container and Vessel Management**

- a. A torrential downpour could result in contamination of surface water runoff.
- b. Surface water runoff could spread hazardous constituents causing on-site and off-site soil and groundwater contamination.
- c. Flooding of the Site by the adjacent stream could spread hazardous constituents off-site.

## **21.4 EMERGENCY COORDINATOR RESPONSIBILITIES**

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When the decision has been made to implement the Plan, the Emergency Coordinator will direct:

- Emergency Response Procedures as described in this Plan
- an accounting of all Site personnel/visitors by head count and from review of the Site attendance records;
- implementation of internal notification;
- notification of the authorities and assistance request, as necessary;
- notification of the BAI Project Manager
- first aid activities (if casualties are involved); and,
- activation of evacuation procedures as described in the HSCP.

In the event that a medical emergency or accident occurs in the Exclusion Zone, all personnel responding to the emergency should be outfitted in the personal protective equipment (PPE) appropriate for the situation as directed by the Site Health and Safety Officer (HSO). As a general rule, personnel should not enter the Exclusion Zone without donning the level of PPE required. In the event that a worker is disabled for an unknown reason, the HSO must make a determination as to the appropriate level of respiratory protection.

Whenever there is an imminent or actual emergency situation, the Emergency Coordinator shall immediately:

- Identify the character, source, amount and a real extent of any discharged materials.
- Activate site alarms or communication systems to notify site personnel.
- Notify the BAI Project Manager

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- Notify appropriate State or local agencies with designated response roles if their assistance is required in accordance with local, state, and federal regulatory requirements.
- Assess possible hazards to human health or the environment which may result from the discharge, fire or explosion considering both direct and indirect effects.
- Notify appropriate local authorities if the assessment indicates that off-site evacuation may be advisable. The Emergency Coordinator shall be available to help appropriate officials decide whether local areas should be evacuated.

If the emergency situation is the result of or results in a release of hazardous constituents to air, soil or surface water, notify the NJDEP 24-hour Hotline at 1-877-927-6337. The following information should be provided immediately:

- name and telephone number of reporter;
- name and address of Site;
- time and type of incident (e.g., fire or release);
- the type of substance discharged;
- the estimated quantity of substance discharged;
- the extent of injuries, if any;
- the possible hazards to human health or the environment (on-site and off-site);
- actions the person reporting the discharge proposes to take to contain, clean up and remove the substance, if any; and,
- any other available information concerning the discharge which the NJDEP may request at the time of notification.
- All information, including the Hotline provided "Incident Number", should be logged in the site log book

Take all reasonable measures necessary to ensure that fires, explosions and discharges do not occur, recur or spread to hazardous materials stored at the Site. These measures must include, as applicable:

- stopping site operations;
- collecting and containing released substances; and,

Immediately after an emergency, provide for treating, storing or disposing of recovered substances, contaminated soil or any other material which results from a discharge, fire or explosion at the Site.

In the affected areas of the Site, ensure that:

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- no waste that may be incompatible with the discharged material is treated, stored or disposed of until cleanup procedures are completed; and,
- all emergency equipment is cleaned and fit for its intended use before operations are resumed.

Before operations are resumed in the affected area(s) of the Site, notify NJDEP and appropriate local authorities that the Site is secured and in compliance.

### ***21.5 GENERAL EMERGENCY PROCEDURES***

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During an emergency, the Emergency Coordinator will take all reasonable measures necessary to ensure that fires, explosions and releases do not occur, recur or spread. These measures must include, where applicable, stopping operations, collecting and containing released materials, and removing or isolating containers, if necessary.

After any worker observes, discovers or otherwise detects an emergency situation involving a fire, explosion or release of hazardous constituents, these general emergency response procedures should be sequentially followed, as appropriate:

1. Workers will render assistance, if safe to do so, to personnel who may be involved in the emergency and remove them from further exposure or injury.
2. Workers will alert other personnel working in adjacent areas to potential hazards and inform the Emergency Coordinator by the quickest available means (e.g., audible alarm, two-way radio, telephone). The audible alarm signal will be 3 short blasts of the air horn or the audible alarm will be sounded repeatedly until the Emergency Coordinator is assured that all site personnel have taken notice. Note: An individual must only attempt to handle fires or other emergencies in their incipient stages; however, under no circumstances will an employee attempt to handle such an emergency alone.
3. If necessary, the Emergency Coordinator will notify all personnel to evacuate by prescribed routes, after personnel have assembled at the designated assembly location.
4. The Emergency Coordinator will call for assistance, as required.
5. Upon hearing the emergency alarm, site operations will stop (shutdown operations are instituted as prescribed later in this section). All personnel must exit the Site and assemble in the emergency assembly area (as indicated on the Site Plan).
6. After all personnel exit the Site and assemble in the Site Evacuation Emergency Assembly Area, the Emergency Coordinator will verify that all site personnel are present or accounted for. The Emergency Coordinator will do this by checking the names of personnel at the Site against a "role call" of those individuals present in the emergency assembly area.
7. If possible, site personnel should decontaminate themselves (if needed) prior to evacuating site.

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8. The Emergency Coordinator will assess the emergency situation with the assistance of first responders. Concurrently, an assessment of possible hazards to public health, safety or welfare, and the environment will be performed.
9. The Emergency Coordinator will direct specific containment and control procedures, and initiate the return to the workplace, if and when appropriate.
10. If necessary, the Emergency Coordinator will contact the Fire Department or other Emergency Service providers.
11. Operations following an emergency will not resume until the emergency is mitigated. In the case of a reportable spill, work will not resume until the NJDEP has given its approval.
12. Immediately after an emergency, the Emergency Coordinator will provide for treating, storing or disposing recovered materials, contaminated soil or surface water, or any other substances which result from a release, fire or explosion at the Site.

The Emergency Coordinator will ensure that, in the affected area(s) of the Site:

- no waste that may be incompatible with the released material is stored until cleanup procedures are completed;
- all emergency equipment is cleaned and refitted for its intended use before operations are resumed;
- the necessary response agencies have been contacted and the required documentation completed. The Emergency Coordinator will document the time, date and details of all incidents which require implementation of the Plan. Within 15 days after any such incident, a written report of the incident will be submitted to the NJDEP, EPA and Chemsol Site Project Coordinator

### **Fire and/or Explosion**

#### **Fire**

The Emergency Coordinator must be notified as soon as a fire is discovered; notification must not be delayed while portable fire extinguishers are used to extinguish fires.

Successful extinguishment of a fire depends on the following conditions being met:

- the fire extinguisher is properly located and in working order;
- the fire extinguisher is of proper type for the fire;
- the fire is discovered while still small enough for the fire extinguisher to be effective; and.
- the fire is discovered by a person adequately trained in the use of the fire extinguisher.

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The locations of the emergency fire extinguishers are readily identified in the Treatment Building by the presence of overhead signs. Additional field fire extinguishers will be made locally available.

### **Explosion**

In the event of an explosion:

- all site operations will cease and the audible alarm will be sounded;
- all personnel not part of the corrective action will exit the Site and assemble at the emergency assembly area;
- if no fire occurs, an investigation and head count will be made as soon as practical;
- injured personnel will be given the highest priority;
- all Emergency Coordinators, and the BAI Project Manager, will be notified of any explosion; and,
- general response procedures will follow those previously described earlier in this section.

## **21.6 EMERGENCY EQUIPMENT**

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Equipment shall be available on-site to handle emergencies such as injuries, fires and spills. This equipment will include first aid supplies (stored in the construction office and plant office areas), eyewash stations and chemical fire extinguishers (at locations in the plant and field), personal protective equipment (stored in the construction office), and spill response equipment (located in the treatment plant).

## **21.7 EMERGENCY ALARMS, NOTIFICATIONS AND PROCEDURES**

---

When any emergency occurs on-site, the Emergency Coordinator shall be notified immediately.

To notify site workers of an emergency, workers will be signaled by means of hand-held or mobile two-way radios or the audible alarm.

The observer of the emergency condition will immediately brief the Emergency Coordinator as to the nature and location of the incident. When they have assessed the situation, a decision whether or not to implement emergency contingency procedures will be made. If these emergency contingency procedures are not to be implemented, notification of "All Clear" will be

given by the Emergency Coordinator or his designee. The "All Clear" notification will be used to indicate a return to normal (i.e., non-emergency) conditions following emergency response activities.

## **21.8 EVACUATION PLAN**

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The Evacuation Plan presented below has been developed in the event an evacuation of the Site becomes necessary. The Evacuation Plan describes the signals to be used to begin an evacuation. The elements of the Evacuation Plan include the evacuation decision, evacuation signals, evacuation routes and procedures for returning to work.

### **Evacuation Decision**

Only the Emergency Coordinator has the authority to direct personnel to evacuate the Site. The Emergency Coordinator will make this decision based on the type of emergency and the degree of hazard to site personnel.

### **Evacuation Signal**

An audible signal will be used to notify site personnel of the decision to evacuate the Site. The evacuation signal will be THREE HORN BLASTS INDICATING THAT ALL PERSONNEL SHOULD EVACUATE.

The evacuation signal requires employees to immediately exit the Site and assemble at the emergency assembly area which is located outside the main site entrance on Fleming Street (see Site Plan).

The Emergency Coordinator must account for all site personnel after the Site is evacuated.

### **Evacuation Routes**

The evacuation routes are shown on the Site Plan. Depending upon the location of the emergency situation and where individual employees are working, they should evacuate the Site via the shortest and safest route and meet at the designated evacuation assembly area.

### **Returning to Work**

Only after the Emergency Coordinator has determined that there is no longer any imminent threat to health and safety from the emergency condition will the workers return to their work stations. Operations may resume only after the Emergency Coordinator has determined that all emergency equipment used during the emergency incident has been cleaned, recharged, reactivated and made fit for use. This decision will be made by verbal command.

The Emergency Coordinator will then complete a list including the names of any local, State or Federal emergency response personnel contacted.

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Once the incident is controlled, removed or eliminated, the Emergency Coordinator will then complete the Post-Spill Report, if applicable.

### **21.9 SPILL RESPONSE & CONTROL**

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The purpose of this section is to define practices and procedures for the prevention, containment and clean-up of accidental discharges of hazardous constituents during construction activities at the Site. These substances include both the contaminated material managed as a result of the operation and materials typically found at any construction site (e.g. lubricating fluids, vehicular diesel fuel and vehicular gasoline).

Spill prevention applies to all types of spills and can be described as the first and simplest approach to spill control. Human error is a major contributing factor to spills and releases. An awareness of spill consequences, preventive measures and countermeasures will greatly reduce spill occurrences. A sound prevention program includes careful work practices, constant inspection, and immediate notification and correction of deficiencies. In the event that a spill does occur, proper containment and cleanup procedures must be followed to reduce the effect of the spill. The following spill clean-up equipment will be maintained at the site during O&M activities:

- Universal absorbent pads – pack of 50
- Absorbent socks – 8
- Granular absorbent – 3 lbs.
- Disposable wipes – 1 box
- Nitrile gloves (heavy duty) - 2 pair
- Nitrile gloves (disposable) – 1 box
- Chemical splash goggles
- Plastic bags with ties
- Open head drums (2)
- Drum labels
- Disposable coveralls (Tyvek) – 2 pair
- Disposable overboots – 2 pair
- Plastic flat shovel

### **21.10 DEFECTIVE SAFETY EQUIPMENT**

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In the event that air monitoring equipment fails to function properly, no work which requires regular air monitoring shall continue. The Construction Superintendent shall immediately obtain a replacement for the defective safety equipment. Air monitoring equipment is available from Pine Environmental (800-301-9663). Air monitoring units are typically available the same day or within 24 hours, delivered to the site.

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No defective safety equipment shall be utilized in any work activity at the site. The Construction Superintendent shall obtain replacement equipment, from BAI stock, rental, or purchase as soon as possible in order to avoid delays in the work schedule.

### ***21.11 SEVERE WEATHER***

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The Project Manager or Construction Manager or his designee shall suspend all outdoor O&M activities in the event of the following conditions:

- Thunderstorm
- High Winds
- Heavy Rains / Deep Snow that would cause unsafe conditions along site access roads.

The Project Manager or Construction Manager or his designee shall communicate with all field workers at the onset of any severe weather condition and instruct all personnel to leave the outdoor work area, properly secure equipment and return to the Treatment Plant. If severe weather is possible based on the weather forecast for the day, the forecast and potential to stop outdoor work will be discussed at the morning jobsite safety meeting. The Project Manager or Construction Manager or his designee will monitor the weather after outdoor work has been suspended and determine if weather conditions have improved enough to resume outdoor work.

### ***21.12 UNEXPECTED DELAYS/EQUIPMENT PROBLEMS***

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In the event that equipment or material deliveries are delayed, or there is a quality problem with delivered materials or equipment, the Project Manager will assess the impact of the disruption on the O&M schedule. All delayed deliveries or equipment problems that will affect the O&M schedule will be reported to the Chemsol Site Project Coordinator.

## **22. List of Appendices**

The appendices to the HSCP are provided below.

- Appendix A - BAI Employee Orientation/Training Records
- Appendix B - Activity Hazard Analysis
- Appendix C - Safety Forms
  - Periodic Safety/Audit Inspection Record
  - Accident Inspection Report Form
  - Safety Meeting Form
- Appendix D – Bigler Associates – Health & Safety Program
- Appendix E – Chemical Hazards Summary Table
- Appendix F – Site Plan



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***Appendix A***

***BAI Employee Orientation/Training Records***



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***Appendix B***  
***Activity Hazard Analysis***



## Activity Hazards Analysis

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Project Name: Chemsol Superfund Site Operable Unit 2, Remedial Work Element II		AHA No. A-1		Date: 11/9/10		New:	
Address Location: 100 Fleming St. Piscataway, NJ		Contractor: Bigler Associates, Inc.				Revised:	
Required Personal Protective Equipment		Level D		Analysis by: DA		Date: 11/9/10	
Superintendent/Competent Person				Reviewed by: RS		Date: 11/9/10	
Work Task/Activity:		Routine O&M – Equipment Inspection, Adjustment and Data Collection		Approved by:		Date:	
Job Step	Potential Hazards	Preventive or Corrective Measures		Inspection Requirements			
Walking during inspections and O&M activities.	Slipping and tripping hazards	<ul style="list-style-type: none"><li>• Personnel awareness of slippery surfaces or tripping hazards.</li><li>• Alert Project Manager, safety manager, and other personnel of any slip or trip hazards or uneven terrains.</li><li>• Remove trip hazards and perform good housekeeping to prevent trip hazards.</li></ul>					
	Biological Hazards	<ul style="list-style-type: none"><li>• Personnel awareness of poison ivy, poison oak</li><li>• Check for ticks periodically, especially when in high grass areas</li><li>• Personnel awareness of various wildlife in area</li></ul>					



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Walking during ice, snow or rain conditions	Slipping and falling due to loss of footing	<ul style="list-style-type: none"><li>• Personnel awareness of slippery surfaces.</li><li>• Take the necessary steps to clear walkways or work areas of snow or ice.</li></ul>	
Climbing up equipment, stairways, or walking on elevated surfaces.	Falls from elevations	<ul style="list-style-type: none"><li>• Maintain three points of contact when climbing on or off equipment.</li><li>• Use hand rails when present.</li><li>• Be aware of slip and trip hazards on elevated surfaces.</li><li>• Use a safety harness if warranted.</li><li>• Keep stairways clear of obstructions/trip hazards.</li></ul>	
Close inspection of equipment	Struck by or caught between/ under equipment or materials.	<ul style="list-style-type: none"><li>• Maintain awareness of location of equipment and piping in relation to head, arms, legs</li><li>• Do not approach/inspect unguarded machinery unless lockout/tagout has been performed</li></ul>	
	Possible exposure to site contaminants	<ul style="list-style-type: none"><li>• Provide personnel with PPE based on the exposure hazards.</li><li>• Review hazardous properties of site contaminants and control measures, including PPE, prior to field operations</li></ul>	Perform initial test of atmospheres for VOA (PID Monitoring) at start of work in any new area

**Training Requirements:**

All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor.

## Activity Hazards Analysis

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Project Name: Chemsol Superfund Site Operable Unit 2, Remedial Work Element II		AHA No. A-2	Date: 11/9/10	New:
Address Location: 100 Fleming St. Piscataway, NJ		Contractor: Bigler Associates, Inc.		Revised:
Required Personal Protective Equipment		Level D	Analysis by: DA	Date: 11/9/10
Superintendent/Competent Person			Reviewed by: RS	Date: 11/9/10
Work Task/Activity:		Routine O&M - Materials/Supplies Delivery including chemicals and chemical transfer	Approved by:	Date:

Job Step	Potential Hazards	Preventive or Corrective Measures	Inspection Requirements
Supplies and materials delivery, off-loading, and storage.	Struck by or caught between/ under equipment or materials.	<ul style="list-style-type: none"> <li>• Ground personnel near operating equipment will wear hard hats, steel toe foot wear and traffic vests.</li> <li>• Do not walk, work, or stand near equipment being unloaded or loaded.</li> <li>• Stay out of swing radius of equipment.</li> <li>• Vehicle/equipment backup alarms to be in operable condition.</li> <li>• Ground guide to direct heavy equipment or vehicles where view/space is obstructed</li> </ul>	

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	Manual lifting or carrying of heavy equipment or materials causing strains or sprains.	<ul style="list-style-type: none"> <li>• Use proper lifting technique - back straight and lift with legs.</li> <li>• Follow sensible lifting limits (60 lb. maximum per person for manual lifting)</li> <li>• Split heavy loads into small loads.</li> <li>• Use mechanical aid whenever possible.</li> <li>• Use more than one person to move large, awkward loads.</li> <li>• Make sure the path of travel is clear.</li> </ul>	
	Pulling or pushing objects and materials causing strains, sprains or hand injuries.	<ul style="list-style-type: none"> <li>• Use your body weight by pushing or pulling</li> <li>• Be aware of trip or slip hazards.</li> <li>• Wear protective canvas or leather gloves.</li> <li>• Use a mechanical aid (dolly, hand cart, drum cart) if possible or as required.</li> </ul>	
Transfer of Chemicals	Transfer of bulk delivered Sodium Hydroxide or Sodium Hypochlorite to system tanks. Transfer is completed by vendor.	<ul style="list-style-type: none"> <li>• Use proper PPE – nitrile gloves, chemical splash goggles, face shield</li> <li>• Be aware of trip or slip hazards</li> <li>• Review location of eye wash/safety shower prior to transfer</li> <li>• Clear out line at end of operation to prevent spills</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect condition of transfer hose, fittings prior to transfer</li> <li>• Site personnel to insure that vendor personnel wear proper PPE</li> <li>• Check receiving tank level prior to and during transfer operation to prevent spills</li> </ul>

**Training Requirements:** All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor.

## Activity Hazards Analysis

Page \_\_\_\_ of \_\_\_\_

Project Name: Chemsol Superfund Site Operable Unit 2, Remedial Work Element II		AHA No. B-1	Date: 11/9/10	New:
Address Location: 100 Fleming St. Piscataway, NJ		Contractor: Bigler Associates, Inc.		Revised:
Required Personal Protective Equipment		Level D - Modified	Analysis by: DA	Date: 11/9/10
Superintendent/Competent Person			Reviewed by: RS	Date: 11/9/10
Work Task/Activity:		Sampling contaminated water and effluent water for process control and permit compliance	Approved by:	Date:
Job Step	Potential Hazards	Preventive or Corrective Measures	Inspection Requirements	
Walking to and from sampling locations.	Slipping and tripping hazards	<ul style="list-style-type: none"> <li>• Personnel awareness of slippery surfaces or tripping hazards.</li> <li>• Alert foreperson, safety manager, and other personnel of any slip or trip hazards or uneven terrains.</li> <li>• Remove trip hazards and perform good housekeeping to prevent trip hazards.</li> </ul>		

**Chemsol - Health & Safety Contingency Plan (HSCP)**

Sample Collection	Possible Exposure to Site Contaminants	<ul style="list-style-type: none"><li>• Use nitrile gloves when sampling to avoid skin contact with contaminated water</li><li>• Provide other PPE based on the exposure hazards, as needed</li><li>• Review hazardous properties of site contaminants and control measures, including PPE, prior to field operations</li><li>• Use bucket to flush sample tap into instead of flushing to floor – avoid unnecessary splashing.</li><li>• Wash thoroughly if accidental contact of contaminated water occurs</li></ul>	Perform initial test of atmospheres for VOA (PID Monitoring) at start of work in any new area
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**Training Requirements:**

All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor.

## Activity Hazards Analysis

Page \_\_\_\_ of \_\_\_\_

Project Name: Chemsol Superfund Site Operable Unit 2, Remedial Work Element II		AHA No. C-1	Date: 11/9/10	New:
Address Location: 100 Fleming St. Piscataway, NJ		Contractor: Bigler Associates, Inc.		Revised:
Required Personal Protective Equipment		Level D	Analysis by: DA	Date: 11/9/10
Superintendent/Competent Person			Reviewed by: LJ	Date: 11/9/10
Work Task/Activity:		Various Preventative and Corrective Maintenance Activities – Mechanical & Electrical	Approved by:	Date:
Job Step	Potential Hazards	Preventive or Corrective Measures	Inspection Requirements	
Equipment and piping disassembly, repair and assembly.	Struck by or caught between/ under equipment or materials.	<ul style="list-style-type: none"> <li>• Ground personnel near operating equipment or working on equipment will wear hard hats, steel toe foot wear, and safety glasses.</li> <li>• Do not walk, work, or stand near equipment being unloaded or loaded.</li> <li>• Stay out of swing radius of equipment.</li> <li>• Vehicle/equipment backup alarms to be in operable condition.</li> <li>• Use of a ground guide.</li> <li>• LOCKOUT TAGOUT all equipment prior to work</li> </ul>		

**Chemsol - Health & Safety Contingency Plan (HSCP)**

Equipment and piping disassembly, repair and assembly.	Possible Exposure to Site Contaminants	<ul style="list-style-type: none"> <li>• Use nitrile gloves to protect hands from contaminated ground water</li> <li>• Drain all piping and equipment prior to disassembly</li> <li>• Decontaminate piping and equipment prior to servicing</li> <li>• Perform initial test of atmospheres for VOA (PID Monitoring) at start of work and during intrusive operations</li> </ul>	
Equipment and piping disassembly, repair and assembly – inclement weather	Slipping and falling due to loss of footing	<ul style="list-style-type: none"> <li>• Personnel awareness of slippery surfaces.</li> <li>• Take the necessary steps to clear walkways or work areas of snow or ice.</li> </ul>	
Equipment and piping disassembly, repair and assembly – cold weather	Cold Stress	<ul style="list-style-type: none"> <li>• Wear adequate clothing and gloves to prevent frostbite and hypothermia.</li> <li>• H&amp;S Manager or foreman to provide constant protective observation.</li> <li>• Provide rest periods in heated office or building.</li> <li>• Minimize standing or sitting for long periods.</li> </ul>	
Equipment and piping disassembly, repair and assembly – Hot weather	Heat stress	<ul style="list-style-type: none"> <li>• Monitor for heat stress in accordance with health and safety procedures.</li> <li>• Provide fluids to prevent work dehydration.</li> <li>• Give frequent breaks.</li> <li>• Stay out of direct sun if possible</li> <li>• Exercise additional precaution when body covering PPE in use</li> </ul>	

**Chemsol - Health & Safety Contingency Plan (HSCP)**

Equipment and piping disassembly, repair and assembly.	Manual lifting or carrying of heavy equipment or materials causing strains or sprains.	<ul style="list-style-type: none"> <li>• Use proper lifting technique - back straight and lift with legs.</li> <li>• Follow sensible lifting limits (60 lb. maximum per person for manual lifting)</li> <li>• Split heavy loads into small loads.</li> <li>• Use mechanical aid whenever possible.</li> <li>• Use more than one person to move large, awkward loads.</li> <li>• Make sure the path of travel is clear.</li> </ul>	
	Falls from elevations	<ul style="list-style-type: none"> <li>• Maintain three points of contact when climbing on or off equipment.</li> <li>• Use hand rails when present.</li> <li>• Be aware of slip and trip hazards on elevated surfaces.</li> <li>• Use a safety harness if warranted.</li> <li>• Keep stairways clear of obstructions/trip hazards.</li> </ul>	
	Pulling or pushing objects and materials causing strains, sprains or hand injuries.	<ul style="list-style-type: none"> <li>• Use your body weight by pushing or pulling</li> <li>• Be aware of trip or slip hazards.</li> <li>• Wear protective canvas or leather gloves.</li> <li>• Use a mechanical aid (dolly, hand cart) if possible.</li> </ul>	

**Chemsol - Health & Safety Contingency Plan (HSCP)**

	<p>Injuries from improper use of hand tools and Equipment</p>	<ul style="list-style-type: none"><li>• Maintain all tools in a safe, good working condition.</li><li>• Personnel must be familiar with tool use.</li><li>• Power tools will have insulated handles, be electrically grounded, or be double insulated.</li><li>• When using a cutting tool, always cut away from body and hands.</li><li>• Keep guards in place during use.</li><li>• Damaged or defective tools will be tagged and removed from service for repair and/or discarded.</li></ul>	
	<p>Hot work (welding or burning)</p>	<ul style="list-style-type: none"><li>• Proper personal protective equipment must be worn for welding and burning.</li><li>• Welding screens must be used when welding operations are in the vicinity of other employees.</li><li>• Hot work permit required.</li><li>• Daily housekeeping will be implemented to ensure that combustible materials do not accumulate.</li><li>• Fire extinguishers of the appropriate rating (10-B:C minimum) will be available onsite and regularly inspected and maintained.</li></ul>	

**Chemsol - Health & Safety Contingency Plan (HSCP)**

	Chemical exposure from adhesives, welding fumes, and coating.	<ul style="list-style-type: none"> <li>• Personnel to wear Modified Level D protection – nitrile gloves, to protect from adhesives and coatings..</li> <li>• Personnel to wash, as soon as practical, any materials contacting bare skin.</li> <li>• Use proper ventilation during adhesive, welding or coating activities.</li> </ul>	Perform initial test of atmospheres for VOA (PID Monitoring) at start of work in any new area
Vehicle usage for equipment hauling and transporting	Vehicle road and traffic hazards, load width and weight-load movement, and obscured vision	<ul style="list-style-type: none"> <li>• Check for distribution of weight.</li> <li>• Secure load with chains and cables or tie downs.</li> <li>• Utilize an assistant driver or ground personnel to direct pathway and stopping points or warn of any danger.</li> <li>• Practice defensive driving.</li> <li>• Back up alarms in audible and good working order.</li> <li>• Be aware of overhead utility when operating tall equipment.</li> </ul>	
Electrical and Instrumentation work including install conduit, run wire, and connections.	Electrical hazards causing electric shock or electrocution.	<ul style="list-style-type: none"> <li>• Electrical work will be performed only by qualified and authorized personnel.</li> <li>• Electrical work will be performed as required by National Electric Code and regulations.</li> <li>• Follow LOCKOUT TAGOUT procedures</li> <li>• All electrical equipment/tools will be properly grounded and class-approved.</li> <li>• No safety devices will be made inoperative by removing guards.</li> </ul>	

**Chemsol - Health & Safety Contingency Plan (HSCP)**

Entry into vessels for cleaning or inspection	Confined Space	<ul style="list-style-type: none"><li>• Confined space entry permit</li><li>• Ventilation and monitoring</li><li>• Lock out/tag out procedures</li><li>• Buddy system.</li></ul>	
	Possible exposure to site contaminants	<ul style="list-style-type: none"><li>• Provide personnel with PPE based on the exposure hazards.</li><li>• Review hazardous properties of site contaminants and control measures, including PPE, prior to field operations</li></ul>	Perform initial test of atmospheres for VOA (PID Monitoring) at start of work in any new area

**Training Requirements:** All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor.



Received

JAN 18 2010

# State of New Jersey

## DEPARTMENT OF ENVIRONMENTAL PROTECTION

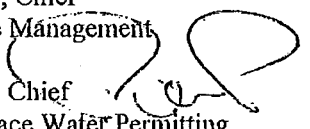
JON S. CORZINE  
GOVERNOR

MARK N. MAURIELLO  
ACTING COMMISSIONER

Division of Water Quality  
P.O. Box 029 Trenton, NJ 08625-0029  
Phone: (609) 292-4860  
Fax: (609) 984-7938

### MEMORANDUM

TO: Steve Maybury, Chief  
Bureau of Case Management

FROM: Pilar Patterson, Chief  12/29/09  
Bureau of Surface Water Permitting

SUBJECT: Chemsol Superfund Site  
Piscataway, Middlesex County  
Surface Water Discharge Permit Equivalent Modification

The attached document provides the modified New Jersey Discharge Elimination System permit equivalent which was originally issued on April 18, 2001 via a memo from Howard B. Tompkins of the former Bureau of Point Source Permitting - Region 1 to Paul Harvey of the Bureau of Case Management. This modified permit equivalent contains modified permit conditions to address an increase in flow for the discharge of treated groundwater at the above noted site to an unnamed tributary of Bound Brook. The existing permit equivalent authorized 37 gallons per minute (gpm), while this modification is increasing the authorization to 70 gpm. This modification is also adding limitations for three new parameters: 1,1-Dichloroethane, 1,1,1-Trichloroethane, and 1,2-Dichlorobenzene.

Although this permit equivalent is being issued by the Department's Bureau of Surface Water Permitting, compliance with the conditions of the permit equivalent will be conducted by the Department's Site Remediation Program.

If you have any questions concerning this document, please contact Robert Hall of my staff at (609) 292-4860.

Attachment

c: William J. Lee, de Maximas, inc.

## **RELATIVE STATUTES**

Permit effluent limitations, monitoring requirements, and other conditions are authorized by the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., also known as the Clean Water Act, and the State Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq. These statutes are implemented by the National Pollutant Discharge Elimination System (NPDES), 40 CFR Part 122, and the New Jersey Pollutant Discharge Elimination System (NJPDES), N.J.A.C. 7:14A-1 et seq., permit programs. On page 1,736 of the Response to Comments of the NJPDES Regulations at N.J.A.C. 7:14A-1 et seq., it is stated that discharges from CERCLA remediation projects are exempted from a NJPDES permit.

## **FACILITY DESCRIPTION**

The Chemsol Superfund Site is located at 100 Fleming Street, Piscataway, NJ 08854, Middlesex County. This facility was a solvent recovery and waste reprocessing operation in the 1950's and 1960's. Contamination at the site resulted in numerous accidents, fires, and explosions. The applicant is treating and discharging an average of approximately 37 gallons per minute (53, 280 gallons per day) of remediated groundwater to an unnamed tributary to Bound Brook, classified as FW2-NT waters. Bound Brook discharges into Green Brook, which in turns discharges to the Raritan River.

The Department received an application to modify this permit equivalent dated November 17, 2009 addressed to the Department's Office of Permit Management. This modification is being issued in response and is authorizing an increase in the discharge volume to 70 gallons per minute (100,800 gallons per day) due to the addition of four groundwater extraction wells at the site. Groundwater at the site is primarily contaminated with the following volatile organic compounds (VOCs): tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene, vinyl chloride, benzene, 1,1-dichloroethene, 1,2-dichloroethane, chloroform, toluene, carbon tetrachloride, chlorobenzene, and methylene chloride.

The treatment plant consists of equalization, air stripping, multimedia filtration, and activated carbon absorption.

## **DESCRIPTION OF MODIFIED LIMITATIONS AND CONDITIONS**

Influent data from the modification application indicates one or more sample results above the remediation standards at N.J.A.C. 7:14-12.11, Appendix B for 1,1-Dichloroethane, 1,1,1-Trichloroethane, and 1,2-Dichlorobenzene. Data originated from maximum influent concentrations going to the treatment plant from extraction wells EX-1UP, EX-2P, EX-3L, and monitoring well MW-203 from March 2004 through June 2007. Therefore, the remediation standard for these three parameters are being added to the "EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR THE CHEMSOL SUPERFUND SITE" table.

**PERMIT EQUIVALENT SUMMARY TABLE**

Facility:	Chemsol Superfund Site	Receiving Stream:	Unnamed tributary of Bound Brook
Wastewater Type:	Groundwater Remediation	Classification:	FW2-NT
Long-Term Average Flow:	100,800 gallons per day (70 gallons per minute)	River Basin:	Raritan River

This Permit Equivalent Summary Table contains only those conditions impacted by the modification request.

Parameter All units in ug/L unless otherwise noted	Statistical Basis	NJPDES Permit Equivalency Modification Application	N.J.A.C. 7:14A-12 Limitation	NJSWQS	Permit Equivalent Limitation
Flow (GPD)	Avg.	100,800	--	--	MR
	Max.	--	--	--	MR
1,1-Dichloroethane	Avg.	13	22	--	MR
	Max.	21	59	--	59
1,1,1-Trichloroethane	Avg.	20	21	--	MR
	Max.	57	54	120 (h)	54
1,2,-Dichlorobenzene	Avg.	344	77	--	MR
	Max.	58	163	2,000 (h)	163

MR denotes Monitor and Report only

GPD – gallons per day

h – noncarcinogenic effect-based human health criteria

**I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR THE CHEMSOL SUPERFUND SITE**

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no visible sheen.

All monitoring shall be conducted in accordance with the Department's current Field Sampling Procedures Manual, which is available from the Maps & Publications Office at (609) 777-1038.

Each analysis required by this permit shall be performed by a New Jersey Certified Laboratory that is certified to perform the analysis.

Samples taken in compliance with the specified monitoring requirements shall be representative of the monitored outfall and taken after the final treatment step, prior to discharge to the unnamed tributary of Bound Brook.

Parameter	Units	Discharge Requirement				Monitoring Requirement	
		Daily Minimum	Monthly Average	Daily Maximum	RQL [1]	Minimum Frequency	Sample Type
Flow	GPD	N/A	MR	MR	N/A	Monthly	Flow Meter
Total Suspended Solids	mg/L	N/A	MR	40	N/A	Monthly	Grab
pH	S.U.	6.0	N/A	9.0	N/A	Monthly	Grab
Tetrachloroethene	ug/L	N/A	MR	16	9	Monthly	Grab
Trichloroethene	ug/L	N/A	MR	5.4	5	Monthly	Grab
Vinyl Chloride	ug/L	N/A	MR	10	10	Monthly	Grab
Benzene	ug/L	N/A	MR	7	7	Monthly	Grab
1,1-Dichloroethene	ug/L	N/A	MR	6	6	Monthly	Grab
1,2-Dichloroethane	ug/L	N/A	MR	3	3	Monthly	Grab
Toluene	ug/L	N/A	26	80	6	Monthly	Grab
Carbon Tetrachloride	ug/L	N/A	MR	6	6	Monthly	Grab
Chloroform	ug/L	N/A	MR	11.4	5	Monthly	Grab
Methylene Chloride	ug/L	N/A	MR	9.4	6	Monthly	Grab
Chlorobenzene	ug/L	N/A	15	28	6	Monthly	Grab
Bis(2-Chloroethyl) ether	ug/L	N/A	MR	10	10	Monthly	Grab
1,1-Dichloroethane*	ug/L	N/A	MR	59	23.5	Monthly	Grab
1,1,1-Trichloroethane*	ug/L	N/A	MR	54	6	Monthly	Grab
1,2,-Dichlorobenzene*	ug/L	N/A	MR	163	N/A	Monthly	Grab
Chronic Toxicity (IC25)	%	61	N/A	N/A	N/A	Quarterly	Composite

N/A – Not Applicable

MR – Monitor and Report

GPD – Gallons per Day

mg/L – Milligrams per Liter

ug/L – Micrograms per Liter

\* New parameters being included in the modified permit equivalent.

- [1] Recommended Quantitation Level. The operating entity shall utilize analytical methods that will ensure compliance with the Quantitation Levels (QLs) above. If the operating entity and/or contract laboratory determines the QLs achieved for any pollutants generally will not be as sensitive as the QLs specified above, the operating entity must submit justification of such to the Bureau of Surface Water Permitting.



## State of New Jersey

CHRIS CHRISTIE  
*Governor*

### DEPARTMENT OF ENVIRONMENTAL PROTECTION

BOB MARTIN  
*Acting Commissioner*

KIM GUARDAGNO  
*Lt. Governor*

Environmental Regulation  
Division of Air Quality  
Air Quality Permitting Element  
401 E. State Street, 2<sup>nd</sup> floor, P.O. Box 027  
Trenton, NJ 08625-0027

### Air Pollution Control Preconstruction Permit and Certificate to Operate Revision

Permit Activity Number: PCP090001

Facility ID Number: 16420

Mailing Address	Plant Location
Mr Gary DiPippo, Manager Hydrology and Remediation Cornerstone Environmental Group 90 Crystal Run Road – Suite 201 Middletown, NY 10941	CHEMSOL SUPERFUND SITE 100 Fleming Street Piscataway Twp Middlesex County, New Jersey

Approval Date: 03/03/2010

Expiration Date: 11/11/2011

The New Jersey Department of Environmental Protection (Department) has reviewed the above referenced air pollution control permit application. On the basis of the information provided, the Department concludes that the application satisfies all applicable requirements of the New Jersey Air Pollution Control regulations codified at N.J.A.C. 7:27 et seq. This Air Pollution Control Permit modification shall supersede any existing Air Pollution Control Permits issued for the specified source. This permit allows for inspection and evaluation of the equipment by the Department to assure conformance with all provisions of N.J.A.C. 7:27 et seq. and any other applicable federal requirements codified at 40 CFR 52, 60, 61 and 63.

This approval changes certain portions of the previously approved preconstruction permit, and this action does not change the current expiration date of the permit. This approval results in a permit that has replaced the one previously issued, Activity Number PCP 960001.

The equipment, that is authorized to be installed and operated under this approval, is described in Section A, Source Operations and Section D, Equipment Inventory. Equipment at the facility referenced by this Permit shall be operated in accordance with the Conditions of Approval set forth in Section D, Facility Specific Requirements.

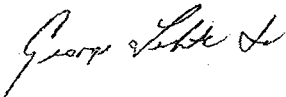
The Department hereby issues this permit and certificate under the authority of chapter 106, P.L. 1967(N.J.S.A 26:2C-9.2). You may construct, reconstruct, install, or modify the above referenced equipment and/or control apparatus consistent with the approval.

If, in your judgment as an applicant for an air pollution control permit, the Department is imposing any unreasonable Condition of Approval, you may contest the Department's decision and request a contested case hearing pursuant to the Administrative Code at N.J.A.C. 7:27-1.32(a). All requests for contested case hearings must be received in writing by the Department within twenty (20) calendar days of the date you receive this permit approval and must contain the information specified in the Administrative Hearing Request Checklist and Tracking Form.

If you have any questions regarding this permit approval, please contact the Department at the Preconstruction Permit Help Line available from 9:00 AM to 4:00 PM daily, where you may speak to someone about any technical questions you may have. The Preconstruction Permit Technical Help Line number is 609-292-6716. If you have any non technical questions please use the Bureau's number 609- 292-0834. If you have any questions when filing a General Permit please use the General Permit Help number 609-633-2829.

Note: We are including two electronic files, one in PDF and the other in RADIUS format. The PDF file contains the complete permit to construct and certificate to operate and may be used for printing a paper copy of your permit. The RADIUS file contains the Facility Name, Location, and Contact Information; the Facility Specific Requirements (Compliance Plan) and Inventories; and any Compliance Schedules (if needed). Upon importing the RADIUS file into your personal computer equipped with the RADIUS software, you will have up-to-date information in RADIUS format. This electronic RADIUS file should not be used to prepare a permit modification, compliance plan changes, 7-day notices, or amendment application if and when you would need to submit one to the Department. A permit application should always be prepared using a new RADIUS file and contain only the new or modified information/equipment. We encourage you to use the most recent RADIUS version. RADIUS software, instructions, and help are available at the Department's website at [www.state.nj.us/dep/aqpp](http://www.state.nj.us/dep/aqpp)

Approved by:



George Fekete Jr.  
Supervising Engineer  
Preconstruction Permits

## Administrative Hearing Request Checklist and Tracking Form

### I. Document Being Appealed

Name of the Facility	Facility ID Number	Permit Activity Number	Issuance Date
CHEMSOL SUPERFUND SITE	16420	PCP090001	

### II. Contact Information

Name of Person Requesting Hearing	Name of Attorney (if applicable)
Address:	Address:
Telephone:	Telephone:

### III. Please include the following information as part of your request:

- A. The date the permittee received the permit decision;
- B. Two printed copies of the document being appealed – for submitting to address 1 below;  
A PDF copy of the document being appealed on a CD – for submitting to address 2 below
- C. The legal and factual questions you are appealing;
- D. A statement as to whether or not you raised each legal and factual issues during the permit application process;
- E. Suggested revised or alternative permit conditions;
- F. An estimate of the time required for the hearing;
- G. A request, if necessary, for a barrier-free hearing location for physically disabled persons;
- H. A clear indication of any willingness to negotiate a settlement with the Department prior to the Departments processing of your hearing request to the Office of Administrative Law;

Mail this form, completed, signed and dated with all of the information listed above, including attachment, to:

1. New Jersey Department of Environmental Protection  
Office of Legal Affairs  
Attention: Adjudicatory Hearing Requests  
401 E. State Street, P.O. Box 402  
Trenton, New Jersey 08625
2. Air Quality Permitting Element  
Preconstruction Permits  
New Jersey Department of Environmental Protection  
401 E. State Street, 2nd Floor, P.O. Box 027  
Trenton, New Jersey 08625  
Phone: (609) 633-2829

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## Administrative Hearing Request Checklist and Tracking Form

**IV. If you are not the applicant but rather an interested person claiming to be aggrieved by the permit decision, please include the following information:**

1. The date you or your agent received notice of the permit decision (include a copy of that permit decision with your hearing request);
2. Evidence that a copy of the request has been delivered to the applicant for the permit which is the subject of the permit decision;
3. A detailed statement of which findings of fact and/or conclusion of law you are challenging;
4. A description of your participation in any public hearings held in connection with the permit application and copies of any written comments you submitted;
5. Whether you claim a statutory or constitutional right to a hearing, and, if you claim such a right, a reference to the applicable statute or explanation of how your property interests are affected by the permit decision;
6. If the appeal request concerns a CAFRA permit decision, evidence that a copy of the request has been delivered to the clerks of the county and the municipality in which the project which is the subject of the permit decision is located;
7. Suggested revised or alternative permit conditions;
8. An estimate of the time required for the hearing;
9. A request, if necessary, for a barrier-free hearing location for physically disable persons;
10. A clear indication of any willingness to negotiate a settlement with the Department prior to the Department's transmittal of the hearing request to the Office of Administrative Law;

Mail this form, completed, signed and dated with all of the information listed above, including attachment, to:

New Jersey Department of Environmental Protection  
Office of Legal Affairs  
Attention: Adjudicatory Hearing Requests  
401 East State Street, P.O. Box 402  
Trenton, New Jersey 08625-0402

Air Quality Permitting Element  
Preconstruction Permits  
New Jersey Department of Environmental Protection  
401 E. State Street, 2nd Floor, P.O. Box 027  
Trenton, New Jersey 08625  
Phone: (609) 633-2829

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Signature

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Date

**AIR POLLUTION CONTROL PRECONSTRUCTION PERMIT**

**Table of Contents**

**Facility Name: CHEMSOL SUPERFUND SITE**

**Facility ID No.: 16420**

**Permit Activity No.: PCP090001**

**Section A**

AUTHORIZED SOURCE OPERATIONS

**Section B**

ACRONYMS

**Section C**

GENERAL PROVISIONS AND AUTHORITIES

**Section D**

PERMIT INFORMATION

## AIR POLLUTION CONTROL PRECONSTRUCTION PERMIT

### Section A

**Facility Name: CHEMSOL SUPERFUND SITE**

**Facility ID No.: 16420**

**Permit Activity No.: PCP090001**

### AUTHORIZED SOURCE OPERATIONS

This Preconstruction Permit and the Certificate to Operate for the following equipment is issued pursuant to N.J.A.C. 7:27-8.

#### Description of Source Activity

**Source Operation Type:** Groundwater remediation

**Source Operation Description:** Equalization tank and air strippers. Air emissions controlled with a catalytic oxidizer, venture scrubber and a packed tower scrubber.

**Source Operation Details:** The sources authorized by this permit shall be operated within the parameters specified in the Equipment, Control Device, and/or Emission Unit/Batch Process Operating Scenario Details of this permit. Operation of the authorized sources within these parameters is required in addition to compliance with the conditions specified in Section D- Facility Specific Requirements.

# AIR POLLUTION CONTROL PRECONSTRUCTION PERMIT

## Section B

Facility Name: CHEMSOL SUPERFUND SITE

Facility ID No.: 16420

Permit Activity No.: PCP090001

## ACRONYMS

BTS	Bureau of Technical Services
CEMS	Continuous Emissions Monitor System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COMS	Continuous Opacity Monitor System
EPA	United States Environmental Protection Agency
HAP	Hazardous Air Pollutant
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NOx	Oxides of Nitrogen
PM-2.5	All particulate matter having an aerodynamic diameter less than or equal to a nominal 2.5 microns
PM-10	All particulate matter having an aerodynamic diameter less than or equal to a nominal 10 microns
PST	Performance Specification Test
REO	Regional Enforcement Office - NJDEP
SO <sub>2</sub>	Sulfur Dioxide
TSP	Total Suspended Particulate Matter
VOC	Volatile Organic Compounds

## AIR POLLUTION CONTROL PRECONSTRUCTION PERMIT

### Section C

Facility Name: CHEMSOL SUPERFUND SITE

Facility ID No.: 16420

Permit Activity No.: PCP090001

### GENERAL PROVISIONS AND AUTHORITIES

#### Preconstruction Permits

1. Notwithstanding compliance with other provisions of N.J.A.C. 7:27-1 et seq., no person shall cause, suffer, allow or permit to be emitted into the outdoor atmosphere substances in quantities which shall result in air pollution as defined at N.J.A.C. 7:27-5.1. [N.J.A.C. 7:27-5.2(a)]
2. The permittee shall not construct, reconstruct, install, or modify a significant source or control apparatus serving the significant source without first obtaining a preconstruction permit under N.J.A.C. 7:27-8. [N.J.A.C. 7:27-8.3(a)]
3. The permittee shall not operate (nor cause to be operated) a significant source or control apparatus serving the significant source without a valid operating certificate. [N.J.A.C. 7:27-8.3(b)]

4. Permit Revisions:

The permittee shall not take any action which requires a permit revision, compliance plan change, seven-day-notice change, amendment, or change to a batch plant permit, under any applicable provision at N.J.A.C. 7:27-8.17 through 8.23, without complying with that applicable provision.

The following summarize N.J.A.C. 7:27-8.18 through 8.21:

- a. The permittee shall file a permit revision request and receive approval from the Department prior to increasing any maximum allowable emission limit, increasing actual emissions, to a rate or concentration greater than a maximum allowable emission, causing the emissions of a new air contaminant, use a new raw material, reconstructing equipment, change the ground level concentration of an air contaminant in an area where the public has access, replace the permitted source, or constructing or installing a new significant source. [N.J.A.C. 7:27-8.18]
- b. The permittee shall file a compliance plan change request and receive approval from the Department prior to decreasing the frequency of testing, monitoring, recordkeeping, or reporting, changing the monitoring method, changing a level, rate, or limit of an operational parameter included in the conditions, or reducing a source's potential to emit. [N.J.A.C. 7:27-8.19]
- c. At least seven days prior to proceeding with a physical or operational change that is outside the scope of activities allowed by this permit, but will not increase emissions over the allowable emissions and will not alter the stack characteristics, the permittee shall file a seven-day-notice change. The permittee

may proceed with the proposed changes seven days after such notice is filed with the Department. [N.J.A.C. 7:27-8.20]

- d. The permittee shall file an amendment within 120 days of making any change of the information contained within Section C of this permit (Facility Profile), changing the name, number or designation of any equipment or stack covered by this permit, changing the parameters of a stack in such a way to reduce the ground level concentration of an air contaminant, or correction of a typographical error that will not result in an increase of actual or allowable emissions. [N.J.A.C. 7:27-8.21]

The permittee shall review the provisions of N.J.A.C. 7:27-8.18 through 7:27-8.21 to determine the appropriate type of request to file.

5. The permittee shall make the preconstruction permit or certificate, together with any amendments, seven-day-notices, or other documents related to the permit and certificate, readily available for Department inspection on the operating premises. [N.J.A.C. 7:27-8.3(d)]
6. The permittee shall not use or cause to be used the equipment or control apparatus unless all components connected or attached to, or serving, the equipment or control apparatus, are functioning properly and are in compliance with the preconstruction permit and certificate and all conditions and provisions thereto. [N.J.A.C. 7:27-8.3(e)]
7. A preconstruction permit is not transferable either from the location authorized in the preconstruction permit to another location, or from any one piece of control apparatus or equipment to another piece of control apparatus or equipment. [N.J.A.C. 7:27-8.3(f)]
8. Once a permit or certificate is issued, the permittee is fully responsible for compliance with N.J.A.C. 8:27-8 and with the permit and certificate, including adequate design, construction, and operation of the source, even if employees, contractors, or others work on or operate the permitted source. If the Department issues any other requirement with the force of law, such as an order, which applies to the source, the permittee is also responsible for compliance with that requirement. [N.J.A.C. 7:27-8.3(g)]
9. Preconstruction permits and certificates do not in any way relieve the permittee from the obligation to obtain necessary permits from other government agencies and to comply with all other applicable Federal, State, and local rules and regulations. [N.J.A.C. 7:27-8.3(h)]
10. The permittee shall not suffer, allow, or permit any air contaminant detectable by the sense of smell, to be present in the outdoor atmosphere in such quantity and duration which is, or tends to be, injurious to human health or welfare, animal or plant life or property, or would unreasonably interfere with the enjoyment of life or property. This shall not include an air contaminant which occurs only in areas over which the permittee has exclusive use or occupancy. In determining whether an odor unreasonably interferes with the enjoyment of life or property, the Department shall consider all of the relevant facts and circumstances, including, but not limited to, the character, severity, frequency, and duration of the odor, and the number of persons affected thereby. In considering these and other relevant facts and circumstances, no one factor shall be dispositive, but each shall be considered relevant in determining whether an odor interferes with the enjoyment of life or property, and, if so, whether such interference is unreasonable considering all of the circumstances. [N.J.A.C. 7:27-8.3(j)]

11. The Department and its representatives have the right to enter and inspect any facility or property in accordance with N.J.A.C. 7:27-1.31. [N.J.A.C. 7:27-8.3(m)]
12. There shall be an affirmative defense to liability for penalties for a violation of a preconstruction permit or certificate occurring as a result of an equipment malfunction, an equipment start-up, an equipment shutdown, or during the performance of necessary maintenance. The affirmative defense shall be asserted and established as required pursuant to P.L. 1993. c.89 (adding N.J.S.A. 26:2C-19.1 through 2C-19.5) and any rules the Department promulgates thereunder, and shall meet all of the requirements thereof. There shall also be an affirmative defense to liabilities for penalties or other sanctions for noncompliance with any technology based emission limitation in this permit or certificate, if the noncompliance was due to an emergency as defined at N.J.A.C. 7:27-22.1, provided that the affirmative defense is asserted and established in compliance with 40 CFR 70.6(g) and meets all requirements thereof. [N.J.A.C. 7:27-8.3(n)]
13. The permittee shall not cause or use the equipment specified in a preconstruction permit in a manner that will result in the emission of any air contaminant not listed in the Facility Specific Requirements in this Preconstruction Permit at a rate equal to or higher than the applicable reporting threshold set forth at N.J.A.C. 7:27-8 Appendix I, Table A or B. [N.J.A.C. 7:27-8.4(k)1]
14. No air contaminant, or category of air contaminant, where accepted by the Department, shall be emitted other than those approved in the preconstruction permit. [N.J.A.C. 7:27-8.13(a)]
15. Any person to whom the Department has issued a preconstruction permit or certificate shall comply with all terms and conditions of any order related to the preconstruction permit or certificate. [N.J.A.C. 7:27-8.13(a)]
16. The permittee shall maintain all records required in the preconstruction permit for a period of five (5) calendar years from the calendar year within which the record was generated. [N.J.A.C. 7:27-8.13(a)]
17. The Department may change the conditions of approval of any approved certificate to operate at the time of renewal of a temporary operating certificate; at the time of approval or renewal of a five-year operating certificate; or at any time during the period a certificate is in effect, if the Department determines that such change is necessary to protect human health or welfare or the environment. [N.J.A.C. 7:27-8.13(b)]
18. Upon request of the Department, the permittee shall submit to the Department information relevant to the operation of equipment and control apparatus including all information specified at N.J.A.C. 7:27-8.13(c). [N.J.A.C. 7:27-8.13(c)]
19. If the conditions of a preconstruction permit or certificate to operate require the Department to incur any of the following charges, the permittee shall reimburse the Department for the full amount of these charges: (1) The charges billed by any phone company for the maintenance of a dedicated telephone line required by this permit or the certificate to operate for the electronic transmission of data; or (2) The charges billed by any laboratory for performing the analysis of audit samples collected pursuant to testing or monitoring required by this permit or the certificate to operate. [N.J.A.C. 7:27-8.13(g)]
20. Any exceedance of the operating requirements or emission concentrations specified in a preconstruction permit shall be reported within three (3) business days, by writing to the Regional Enforcement Office. [N.J.A.C. 7:27-8.13(h)]

21. The permittee shall, when requested by the Department, provide such testing facilities exclusive of instrumentation and sensing devices as may be necessary for the Department to determine the kind and amount of air contaminants emitted from the equipment or control apparatus. The testing facilities shall include the utilities, the structure to hold testing equipment and/or personnel, and any ports in stacks needed to carry out testing required by this permit. During testing by the Department, the equipment and control apparatus shall be operated under such conditions within their capacities as may be requested by the Department. The test facilities may be either permanent or temporary, at the discretion of the person responsible for their provision, and shall conform to all applicable laws, regulations, and rules concerning safe construction and safe practice. Testing facilities, which contain platforms and other means of personnel access, shall conform to OSHA standards. [N.J.A.C. 7:27-8.13(i)]
22. Upon request of the Department, the permittee shall submit to the Department any record relevant to any permit or certificate. Such records shall be submitted to the Department within thirty (30) days of the request by the Department or within a longer time period if approved in writing by the Department. [N.J.A.C. 7:27-8.15(a)]
23. The permittee shall submit any required report in a format and on a schedule approved by the Department. Such report shall be transmitted on paper, on computer disk, or electronically, at the discretion of the Department. [N.J.A.C. 7:27-8.15(b)]
24. Any report submitted to the Department, including but not limited to, a report submitted as an amendment of this permit or the certificate to operate pursuant to N.J.A.C. 7:27-8.3(c) shall include, as an integral part of the report, certifications complying with N.J.A.C. 7:27-1.39. [N.J.A.C. 7:27-8.15(c)]
25. Upon request of the Department, the permittee shall report on forms obtained from the Department the air contaminant actual emissions and information relevant thereto, of any air contaminant or category of air contaminant emitted by the equipment, control apparatus, or source operation. [N.J.A.C. 7:27-8.15(d)]
26. Any emission limit values in a preconstruction permit shall be interpreted to be followed by inherent trailing zeros (0) in the decimal portion of the limit to three significant figures (e.g. a printed limit of "1 lb/hr" means a limit of "1.00 lb/hr").
27. This listing of requirements reflects the state rules and regulations that apply to a majority of sources. If a specific requirement in a rule or regulation that applies to a permittee is not included in this section or in the Facility Specific Requirements it does not relieve the permittee from the obligation to comply with that regulation.
28. Process monitors must be operated at all times when the associated process equipment is operating except during outage time allowed by Department guidelines/procedures or as outlined in Technical Manual 1005. The Permittee must keep a service log as required.

29. The following Department offices may be referenced in a preconstruction permit. Please use the following addresses when submitting any correspondence to these offices:

Bureau of Technical Services  
P. O. Box 437  
380 Scotch Road  
West Trenton, NJ 08625

Central Regional Enforcement Office  
P. O. Box 407  
Trenton, NJ 08625-0407

Northern Regional Enforcement Office  
7 Ridgedale Avenue  
Cedar Knolls, NJ 07927

Southern Regional Enforcement Office  
2 Riverside Drive – Suite 201  
Camden, NJ 08102

30. In accordance with the Air Pollution Control Act at N.J.S.A. 26:2C-19(e), any operation of the equipment which may cause off-property effect, including odors, shall be immediately reported by calling the NJDEP Environmental Action Hotline at (877) 927-6337.
31. In accordance with N.J.A.C. 7:27-21, facilities are required to submit annual emission statements of their actual emissions if the Potential-to-emit for the entire facility exceeds the following thresholds (including all emissions from the facility, both permitted and unpermitted). Additional information about Emission Statement reports can be obtained by calling (609) 984-5483.

<b>AIR CONTAMINANT</b>	<b>Threshold in Tons per Year</b>
VOC (Volatile Organic Compounds)	10
NOx (Oxides of Nitrogen)	25
CO (Carbon Monoxide)	100
SO <sub>2</sub> (Sulfur Dioxide)	100
TSP (Total Suspended Particulates)	100
PM <sub>2.5</sub> (Particulate Matter ≤ 2.5 microns)	100
PM <sub>10</sub> (Particulate Matter ≤ 10 microns)	100
NH <sub>3</sub> (Ammonia)	100
Lead	5

32. In accordance with N.J.A.C. 7:27-22, facilities are required to submit a Title V Operating Permit application, within one year, if the potential-to-emit for the entire facility exceeds any of the following thresholds (including all emissions from the facility, both permitted and unpermitted). Additional Information about Operating Permits can be obtained by calling the Operating Permit Hotline at (609) 633-8248.

<b>AIR CONTAMINANT</b>	<b>Threshold in Tons per Year</b>
VOC (Volatile Organic Compounds)	25
NOx (Oxides of Nitrogen)	25
CO (Carbon Monoxide)	100
SO <sub>2</sub> (Sulfur Dioxide)	100
TSP (Total Suspended Particulates)	100
PM <sub>10</sub> (Particulate Matter ≤ 10 microns)	100
Lead	10
Any HAP (Hazardous Air Pollutant)	10
All HAPs Collectively	25
Any other Air Contaminant	100

**AIR POLLUTION CONTROL PRECONSTRUCTION PERMIT**

**Section D**

**Facility Name: CHEMSOL SUPERFUND SITE**

**Facility ID No.: 16420**

**Permit Activity No.: PCP090001**

**PERMIT INFORMATION**

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FACILITY SPECIFIC REQUIREMENTS

REASON FOR APPLICATION

FACILITY PROFILE (GENERAL)

EQUIPMENT INVENTORY

CONTROL DEVICE INVENTORY

EMISSION POINT INVENTORY

EMISSION UNIT/BATCH PROCESS INVENTORY

**AIR POLLUTION CONTROL PRECONSTRUCTION PERMIT**

**Section D**

**Facility Name: CHEMSOL SUPERFUND SITE**

**Facility ID No.: 16420**

**Permit Activity No.: PCP090001**

**FACILITY SPECIFIC REQUIREMENTS INDEX**

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PCP090001

**New Jersey Department of Environmental Protection  
Facility Specific Requirements**

**Emission Unit:** U1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

**CD1 Catalytic Oxidizer**

**Subject Item:**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Minimum Operating Temperature at the Inlet of the Catalytic Oxidizer $\geq$ 900 degrees F. The minimum operating temperature shall be attained prior to start-up of the source equipment, with an automatic shutoff system designed to inactivate the source equipment when the inlet temperature is less than the minimum operating temperature. [N.J.A.C. 7:27- 8.13(a)]	Minimum Operating Temperature at the Inlet of the Catalytic Oxidizer: Monitored by temperature instrument continuously, based on no averaging period. A temperature sensor shall be installed and operated to continuously monitor temperature at the inlet of the catalyst. This sensor shall be operated in accordance with the manufacturer specifications. [N.J.A.C. 7:27- 8.13(d)2]	Minimum Operating Temperature at the Inlet of the Catalytic Oxidizer: Recordkeeping by strip chart or data acquisition (DAS) system continuously. The Permittee shall record operating temperature measurements prior to the catalyst in the combustion chamber on a continuous basis by installing and operating a continuous temperature recorder. Records shall be kept for a period of five years. [N.J.A.C. 7:27- 8.13(d)3]	Submit a report: Upon occurrence of event. The permittee shall report any non-compliance within three working days after the event in writing to the Air Regional Enforcement Office. [N.J.A.C. 7:27- 8.13(d)4]
2	VOC Destruction and Capture Efficiency $\geq$ 99 %. [N.J.A.C. 7:27- 8.13(a)]	None.	Other: The Permittee shall retain manufacturer specifications for the control apparatus and make them available for NJDEP inspection upon request. The documentation shall be kept for the duration of the site remediation project, plus 5 years. [N.J.A.C. 7:27- 8.13(d)3].	None.
3	The catalytic oxidizer shall be operated and maintained in accordance with manufacturer directions. [N.J.A.C. 7:27- 8.13(a)]	None.	Other: The Permittee shall retain the manufacturer's directions for the control apparatus and make them available for NJDEP inspection upon request. The documentation shall be kept for the duration of the site remediation project, plus 5 years. [N.J.A.C. 7:27- 8.13(d)3].	None.
4	The catalyst shall be changed once the useful life has been reached. [N.J.A.C. 7:27- 8.13(a)]	None.	None.	None.

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**New Jersey Department of Environmental Protection  
Facility Specific Requirements**

**Emission Unit:** U1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

**Subject Item:** CD2 Venturi Quench Tower

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Flowrate of Scrubbing Medium at Scrubber Inlet $\geq 12$ and Flowrate of Scrubbing Medium at Scrubber Inlet $\leq 50$ gal/min. [N.J.A.C. 7:27- 8.13(a)]	Flowrate of Scrubbing Medium at Scrubber Inlet: Monitored by scrubber flow rate instrument continuously. The permittee shall install, calibrate and maintain the monitor(s) in accordance with the manufacturer's specifications. The monitor(s) shall be ranged such that the allowable value is approximately mid-scale of the full range current/voltage output. [N.J.A.C. 7:27- 8.13(d)2]	Flowrate of Scrubbing Medium at Scrubber Inlet: Recordkeeping by manual logging of parameter or storing data in a computer data system each week during operation. [N.J.A.C. 7:27- 8.13(d)3]	None.

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**New Jersey Department of Environmental Protection**  
**Facility Specific Requirements**

**Emission Unit:** U1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

**Subject Item:** CD3 Packed Column Scrubber

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Flowrate of Scrubbing Medium at Scrubber Inlet $\geq 12$ and Flowrate of Scrubbing Medium at Scrubber Inlet $\leq 50$ gal/min. [N.J.A.C. 7:27- 8.13(a)]	Flowrate of Scrubbing Medium at Scrubber Inlet: Monitored by scrubber flow rate instrument continuously. The permittee shall install, calibrate and maintain the monitor(s) in accordance with the manufacturer's specifications. The monitor(s) shall be ranged such that the allowable value is approximately mid-scale of the full range current/voltage output. [N.J.A.C. 7:27- 8.13(d)2]	Flowrate of Scrubbing Medium at Scrubber Inlet: Recordkeeping by manual logging of parameter or storing data in a computer data system each week during operation. [N.J.A.C. 7:27- 8.13(d)3]	None.
2	Scrubbing Solution: Sodium Hydroxide [N.J.A.C. 7:27- 8.13(a)]	None.	None.	None.
3	pH of the Scrubbing Solution at the Inlet of the Scrubber $\geq 7$ standard units. [N.J.A.C. 7:27- 8.13(a)]	pH of the Scrubbing Solution at the Inlet of the Scrubber: Monitored by pH instrument continuously. The permittee shall install, calibrate and maintain the monitor(s) in accordance with the manufacturer's specifications. The monitor(s) shall be ranged such that the allowable value is approximately mid-scale of the full range. An alarm shall call out to the operator if the pH falls outside the allowable range and corrective action shall be taken immediately. [N.J.A.C. 7:27- 8.13(d)2]	pH of the Scrubbing Solution at the Inlet of the Scrubber: Recordkeeping by manual logging of parameter or storing data in a computer data system each week during operation. [N.J.A.C. 7:27- 8.13(d)3]	None.
4	Pressure Drop $\geq 0.5$ and Pressure Drop $\leq 3$ inches w.c. If the pressure drop varies outside the normal operating range, corrective action shall be taken. [N.J.A.C. 7:27- 8.13(a)]	Pressure Drop: Monitored by pressure drop Instrument continuously, based on an instantaneous determination. [N.J.A.C. 7:27- 8.13(d)2]	Pressure Drop: Recordkeeping by manual logging of parameter or storing data in a computer data system each week during operation. [N.J.A.C. 7:27- 8.13(d)3]	None.

CHEMSOL SUPERFUND SITE (16420)

PCP090001

Date: 3/3/2010

New Jersey Department of Environmental Protection  
Facility Specific Requirements

Emission Unit: U1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

Subject Item: E1 Groundwater Equalization Tank

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Maximum tank capacity<= 10,800 gallons. [N.J.A.C. 7:27- 8.13(a)]	None.	None.	None.

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**New Jersey Department of Environmental Protection  
Facility Specific Requirements**

**Emission Unit:** U1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

**Subject Item:** E2 Tray Air Stripper

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Flowrate <= 70 gal/min. [N.J.A.C. 7:27-8.13(d)2ii]	Flowrate: Monitored by material feed/flow monitoring continuously. The permittee shall monitor using a continuous flow meter. The permittee shall install, calibrate and maintain the monitor(s) in accordance with the manufacturer's specifications. The monitor(s) shall be ranged such that the allowable value is approximately mid-scale of the full range current/voltage output. [N.J.A.C. 7:27- 8.13(d)1]	Flowrate: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27- 8.13(d)3]	None.

**New Jersey Department of Environmental Protection  
Facility Specific Requirements**

**Emission Unit:** U1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

**Subject Item:** E3 Tray Air Stripper

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Flowrate <= 70 gal/min. [N.J.A.C. 7:27-8.13(d)2ii]	Flowrate: Monitored by material feed/flow monitoring continuously. The permittee shall monitor using a continuous flow meter. The permittee shall install, calibrate and maintain the monitor(s) in accordance with the manufacturer's specifications. The monitor(s) shall be ranged such that the allowable value is approximately mid-scale of the full range current/voltage output. [N.J.A.C. 7:27- 8.13(d)1]	Flowrate: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27- 8.13(d)3]	None.

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New Jersey Department of Environmental Protection  
Facility Specific Requirements

Emission Unit: U1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

OS Summary

Operating Scenario:

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Maximum No. of Billable Compliance Inspections $\leq$ 2 inspections. The equipment covered by this permit will be subject to inspection fees for the maximum periodic compliance inspections (as defined in N.J.A.C. 7:27-8.1) over the life of the Certificate, after it receives final approval for a five year duration. The permittee will be invoiced for a service fee per inspection pursuant to N.J.A.C. 7:27-8.6 after the periodic compliance inspection is conducted. [N.J.A.C. 7:27- 8.13(e)]	None.	None.	None.
2	Opacity: There shall be no visible emissions, exclusive of visible water vapor, except for three minutes in any consecutive thirty minute period. [N.J.A.C. 7:27- 8]	Opacity: Monitored by visual determination upon request of the Department, based on an instantaneous determination. [N.J.A.C. 7:27- 8]	Opacity: Recordkeeping by manual logging of parameter or storing data in a computer data system upon request of the Department. [N.J.A.C. 7:27- 8]	None.
3	VOC (Total) $\leq$ 0.351 tons/yr. Based on maximum hourly emission rate and continuous operation. [N.J.A.C. 7:27- 8.13(h)1]	None.	None.	None.
4	SO <sub>2</sub> $\leq$ 1.31 tons/yr. Based on maximum hourly emission rate and continuous operation. [N.J.A.C. 7:27- 8.13(h)1]	None.	None.	None.
5	Trichloroethylene $\leq$ 0.144 tons/yr. Based on maximum hourly emission rate and continuous operation. [N.J.A.C. 7:27- 8.13(h)1]	None.	None.	None.
6	Emissions of all other contaminants are below the respective reporting thresholds, as stated in N.J.A.C. 7:27-8 Appendix 1, Tables A & B. [N.J.A.C. 7:27- 8]	None.	None.	None.

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**New Jersey Department of Environmental Protection**  
**Facility Specific Requirements**

**Emission Unit:** U1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

OS1 Equalization Tank, OS2 Air stripper, OS3 Air stripper

**Operating Scenario:**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	VOC (Total) <= 0.0802 lb/hr (total for OS1, OS2 and OS3). [N.J.A.C. 7:27- 8.13(h)]	Other: Conduct an analysis of the source operation, which demonstrates that, under the operating conditions that maximize the VOC emissions, the VOC emission rate of the source operation is in compliance with this section.[N.J.A.C. 7:27-16.16(g)1ii].	Other: Maintain process records sufficient to demonstrate whether the VOC emission rate of the source operation from actual operations does not exceed the VOC emission rate under operating conditions.[N.J.A.C. 7:27-16.16(g)1ii].	None.
2	SO2 <= 0.3 lb/hr (total for OS1, OS2 and OS3). [N.J.A.C. 7:27- 8.13(h)]	None.	None.	None.
3	Trichloroethylene <= 0.0329 lb/hr (total for OS1, OS2 and OS3). [N.J.A.C. 7:27- 8.13(h)]	None.	None.	None.

**New Jersey Department of Environmental Protection**  
**Reason for Application**

**Permit Being Modified**

Permit Class: PCP      Number: 90001

**Description of Modifications:** The Chemsol Inc. Superfund Site, currently owned by Tang Realty Inc. (TRI) is located in Piscataway, New Jersey. In September of 1983 the site was placed on the Superfund National Priorities List (NPL). An Interim Remedial Measure (IRM) consisting of pumping and treating groundwater was implemented as Operable Unit No. 1 (OU1) at the Chemsol Site, and has been in operation since June 1994. Groundwater is currently extracted from well C-1 at typical rates of 15-20 gpm and pumped to the on-site groundwater treatment plant. Historically, extraction rates have been as high as 30 gpm; however, due to the well construction spanning two water-bearing zones, and the resultant cascading groundwater effect, fouling has resulted in generally lower extraction rates than at startup.

The existing groundwater treatment plant at the Chemsol Site is a part of the Interim Groundwater Remedy. The existing treatment plant discharges to an unnamed tributary of the Bound Brook following physical/chemical treatment. The treatment plant is composed of the following unit processes: Equalization, Air Stripping, Mixed Media Filtration, Granular Activated Carbon (GAC) Polishing, Solids Management, and Catalytic Oxidation of Air Stripper Emissions. The majority of the unit processes and forward flow system was designed for a flow rate of 50 gallons per minute (gpm).

Pursuant to the Scope of Work (SOW) specified in a January 26, 2000 Consent Decree, the final groundwater remedy for the site (OU2) is to provide on-site containment of contaminated groundwater. To provide a basis of design for on-site containment, a Pre-Design Verification Study (PDVS) was undertaken. The study results indicate that on-site capture of the plume is attainable with four extraction wells generally positioned along the northern portion of the site. In addition, to address mass removal "to the extent practicable" as also required by the Consent Decree and SOW, groundwater extraction will be included in two wells: (1) existing well C-1 retrofitted to become an Upper Permeable Aquifer well, and (2) new well C-1P within the Principal Aquifer constructed adjacent to existing well C-1. Operation of the above-described wells to attain on-site capture of the plume would increase the groundwater treatment plant flowrate to the estimated range of 47-57 gpm. In addition, the treatment plant will have reserve capacity to treat up to 70 gpm.

To achieve the flow rates necessary for on-site capture, the existing treatment plant will be upgraded. These upgrades are primarily a change from packed tower to shallow tray air strippers, minor modification of the mixed media filters, and increased capacity of certain forward flow pumps. While the catalytic oxidizer/scrubber system will not be modified, the influent to the treatment plant and the mass loading to the air emission controls will change. This permit revision package has been prepared as part of a modification request for air pollution control permit equivalent PCP #960001 for emissions from the catalytic oxidizer/scrubber (Emission Point 1), dated August 25, 1994, to address the upgrade to the treatment plant. As described further in the permit modification narrative, mass loading to the catalytic oxidizer/scrubber will be consistent with the original design and operation of the air emission controls will not materially change.

Please note that the RADIUS application enclosed has a minor item that could not be appropriately input. The RADIUS software would not allow the insertion of the correct NJ EIN for Cornerstone on the Facility Profile (General) page. The NJ Business Entity ID for Cornerstone Environmental Group, LLC is 0600-2572-41.

**CHEMSOL SUPERFUND SITE (16420)**  
**PCP090001**

Date:3/3/2010

**New Jersey Department of Environmental Protection**  
**Reason for Application**

**CHEMSOL SUPERFUND SITE (16420)**  
**PCP090001**

Date: 3/3/2010

**New Jersey Department of Environmental Protection**  
**Facility Profile (General)**

**Facility Name (AIMS):** Chemsol Inc. Superfund Site

**Facility ID (AIMS):** 16420

**Street** 100 FLEMING ST  
**Address:** PISCATAWAY, NJ 08854

**Mailing** CHEMSOL SUPERFUND SITE TRUST  
**Address:** C/O WILLIAM H HYATT JR ESQ  
K&L GATES ONE NEWARK CTR 10TH FL  
NEWARK, NJ 07102-5285

**County:** Middlesex

**Location** The approximately 40 acre site is located in  
**Description:** Piscataway, Middlesex County, New Jersey.  
It is approximately one-half mile north of  
interstate 287. The site is bounded on the  
south by the Port Reading Railroad  
right-of-way.

**State Plane Coordinates:**

**X-Coordinate:** 507,578

**Y-Coordinate:** 629,635

**Units:** New Jersey State Plane 8

**Datum:** NAD83

**Source Org.:** Other/Unknown

**Source Type:** Other/Unknown

**Industry:**

**Primary SIC:**

**Secondary SIC:**

**NAICS:**

New Jersey Department of Environmental Protection  
Facility Profile (General)

**Contact Type: Consultant**

**Organization:** Cornerstone Environmental Group

**Org. Type:** LLC

**Name:** Gary Di Pippo

**NJ EIN:**

**Title:** Manager, Hydrogeology and Remediation

**Phone:** (845) 695-0251 x

**Mailing Address:** 90 Crystal Run Road

**Fax:** (845) 692-5894 x

Suite 201  
Middletown, NY 10941

**Other:** ( ) - x

**Type:**

**Email:** Gary.DiPippo@Cornerstoneeg.com

---

**Contact Type: EPA Official**

**Organization:** USEPA, Region II

**Org. Type:** Federal

**Name:** Nigel Robinson

**NJ EIN:**

**Title:** Remedial Project Manager

**Phone:** (212) 637-4394 x

**Mailing Address:** USEPA, Region II

**Fax:** ( ) - x

Emergency & Remedial Response Div.  
290 Broadway, 19th Floor  
New York, NY 10007-1866

**Other:** ( ) - x

**Type:**

**Email:** robinson.nigel@epa.gov

---

**Contact Type: Owner (Current Primary)**

**Organization:** Chemsol Superfund Site Trust, c/o K&L Gates

**Org. Type:** Other

**Name:** William H. Hyatt, Jr. Esq.

**NJ EIN:**

**Title:** Responsible Party

**Phone:** (973) 848-4000 x

**Mailing Address:** K&L Gates

**Fax:** (973) 848-4001 x

One Newark Center  
10th Floor

**Other:** ( ) - x

Newark, NJ 07102-5285

**Type:**

**Email:** hyatt@klgates.com

**CHEMSOL SUPERFUND SITE (16420)**  
**PCP090001**

Date: 3/3/2010

**New Jersey Department of Environmental Protection**  
**Facility Profile (General)**

**Contact Type:** Registered Agent

**Organization:** de maximis

**Name:** William J. Lee

**Title:**

**Phone:** (908) 735-9315 x

**Fax:** (908) 735-2132 x

**Other:** ( ) - x

**Type:**

**Email:** wjlee@demaximis.com

**Org. Type:** Corporation

**NJ EIN:**

**Mailing Address:** 186 Center Street  
Suite 290  
Clinton, NJ 08809

CHEMSOL SUPERFUND SITE (16420)  
PCP090001

Date: 3/3/2010

New Jersey Department of Environmental Protection  
Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand- Fathered	Last Mod. (Since 1968)	Equip. Set ID
E1	T-1	Groundwater Equalization Tank	Storage Vessel	960001	6/1/1994			
E2	ME-2 A	Tray Air Stripper	Air Stripper					
E3	ME-2 B	Tray Air Stripper	Air Stripper					

CHEMSOL SUPERFUND SITE (16420)  
PCP090001

Date: 3/3/2010

New Jersey Department of Environmental Protection  
Control Device Inventory

CD NJID	Facility's Designation	Description	CD Type	Install Date	Grand- Fathered	Last Mod. (Since 1968)	CD Set ID
CD1	ME-12	Catalytic Oxidizer	Oxidizer (Catalytic)	6/1/1994	No		
CD2	ME-13A	Venturi Quench Tower	Scrubber (Venturi)	6/1/1994	No		
CD3	ME-13B	Packed Column Scrubber	Scrubber (Packed Tower)	6/1/1994	No		

CHEMSOL SUPERFUND SITE (16420)  
PCP090001

Date: 3/3/2010

New Jersey Department of Environmental Protection  
Emission Points Inventory

PT NJID	Facility's Designation	Description	Config.	Equiv. Diam. (in.)	Height (ft.)	Dist. to Prop. Line (ft)	Exhaust Temp. (deg. F)			Exhaust Vol. (acfm)			Discharge Direction	PT Set ID
							Avg.	Min.	Max.	Avg.	Min.	Max.		
PT1	EP-1	Scrubber system exhaust duct with fan	Round	6	35	135		120.0	130.0		387.0	567.0	Up	

CHEMSOL SUPERFUND SITE (16420)  
PCP090001

Date: 3/3/2010

New Jersey Department of Environmental Protection  
Emission Unit/Batch Process Inventory

U 1 EC1 Catalytic oxidation with caustic scrubbing of air stripper/equalization tank emissions

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours		VOC Range	Flow (acfm)		Temp. (deg F)	
								Min.	Max.		Min.	Max.	Min.	Max.
OS1	Tank	Equalization Tank	Normal - Steady State	E1	CD1 (P) CD2 (S) CD3 (T)	PT1		8,760.0	8,760.0	A	1.0	567.0	50.0	130.0
OS2	AS1	Air stripper	Normal - Steady State	E2	CD1 (P) CD2 (S) CD3 (T)	PT1		8,760.0	8,760.0	A	200.0	567.0	50.0	130.0
OS3	AS2	Air stripper	Normal - Steady State	E3	CD1 (P) CD2 (S) CD3 (T)	PT1		8,760.0	8,760.0	A	200.0	567.0	50.0	130.0

SITE\_ID

SITENAME

**NJD980528889**  
**CHEMSOL, INC.**

The disk entitled:

*Remedial Work Element II, O&M Manual Addendum, Final, Volume I, prepared by Bigler Associates, Inc., prepared for Chemsol Site Remediation Trust*

Document Date: 8/ 1/2011      Disk Date: 8/23/2011

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**2,037**

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Region 2  
Record Center Staff